INTERPRETING THE PAST

Volume II

Heritage,
New Technologies
and Local Development

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Proceedings of the Conference on Authenticity,
Intellectual Integrity and Sustainable Development of
the Public Presentation of Archaeological and Historical
Sites and Landscapes

Ghent, East-Flanders
11-13 September 2002

Interpreting The Past - Volume II

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Ename Center for Public Archaeology and Heritage Presentation

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CONFERENCE OPENING SESSION

11 September 2002

GREETINGS AND INTRODUCTION

Herman Balthazar
Governor
Province of East-Flanders, Belgium

Commissioner Reding, Minister Van Grembergen, Deputy Van Der Meiren, ladies and gentlemen. It is my great pleasure this evening to welcome you all to the province of East-Flanders and wish you a pleasant and productive stay here as you begin your discussions and deliberations. As Governor, it is my honour to welcome this distinguished audience of scholars, professionals, representatives of international organizations and government officials brought together by a common interest in the promotion and development of public interpretation of archaeological and historical heritage. Indeed, this conference on heritage, technology and local development marks what all of us hope will be a major step forward in international cooperation in this field.

As many of you already know, or may soon learn during your stay here, our province has long been keenly aware of the importance of history and heritage in the enrichment of its citizens' cultural life. Our archaeological record, which begins in the Mesolithic period, offers an unbroken chronicle of Flemish cultural adaptation and survival over many millennia. And our historic monuments and landscapes have always been a source of great public interest and pride. In recent years, our province has undertaken a wide range of heritage projects in which public presentation has been an important aspect. We view our responsibility of communicating with the broad public as being as important as every other facet of our heritage preservation work.

At the heart of our heritage policy in East-Flanders, in our museums, at our archaeological sites and monuments and in our special school programmes, is our firm conviction that scientific research about our history and heritage, no matter how important or profound, is far less valuable unless it is communicated widely to the general population and becomes a living element in the consciousness of contemporary society. In recent years, Flanders in general and East-Flanders in particular have become the scene of significant advances in high technology and it is therefore appropriate that this most modern form of technical expertise has

been harnessed to illuminate and communicate recent discoveries of our history and heritage. We hope that the lessons learned and the experience gained here will be of interest and relevance to you in your discussions in the coming days. And we are honoured to support the work of this conference at which the principles and potential of public interpretation will be discussed by the representatives of so many states, regions, and cities, in an effort to develop and encourage the best standards, methods and technologies.

One of the major goals of the coming days is, of course, the beginning of the formulation of a preliminary draft of an international charter in which the main elements of good practice in the process of heritage presentation will be outlined. We actively seek and welcome your input and active participation in the formulation of the Ename Charter in the coming months and years. We believe that the themes of scientific standards, planning, funding and management, tourism and heritage education and training may form a possible foundation for what may indeed be called 'sustainable' heritage development. It can be the first important step in forming a working international consortium of partners for innovative heritage development and I look forward to being in contact with many of you as the work moves ahead.

In conclusion, I want to welcome you again to this opening session and hope that you will come away from this conference with warm memories of East-Flanders and a continuing commitment to cooperation in the important task of communicating cultural heritage to the public at large.

WELCOME TO CONFERENCE PARTICIPANTS

Paul Van Grembergen
Minister of Interior Affairs, Culture, Youth and Civil Administration, Flemish Government, Belgium

Governor Balthazar, Commissioner Reding, Deputy Van Der Meiren, honoured conference participants and distinguished local guests. It is my great pleasure to be here in Ghent this evening to offer a few words of welcome on the occasion of the opening of this important international conference on 'Heritage, New Technologies and Local Development'.

As Minister with responsibility for heritage, culture and interior affairs, I take special interest in a conference whose goal is making the past and the present work together, as difficult as that sometimes might seem. I applaud the ideal of making heritage a potentially valuable part of every community's modern development, while at the same time recognizing the limits of commercialisation of culture and carefully safeguarding its archaeological and historical integrity. As you have probably already seen during your arrival today in this historic city, Ghent and indeed all of Flanders is blessed with a great richness of archaeological, architectural and artistic heritage. Our historical monuments are not museum pieces: they are part of our daily lives. Our churches, castles, town halls, monasteries, markets and our landscape of rivers, hills and meadows have been the stages on which our history has unfolded, and continues to unfold in our own times. We make great efforts through our Administration for Landscapes and Monuments and through our Institute for the Archaeological Heritage of the Flemish Community to ensure that the sites, monuments and historic landscapes of Flanders are carefully and creatively protected and studied with the most modern techniques. And the challenge of continuing research is one that we of course share with the Flemish universities. Yet there is something more than physical preservation and specialised study in the field of heritage preservation and research: we have found that one of the most important tasks, public communication, is also one of the most difficult. How can we most effectively convey the significance and meaning of our heritage to the general public: local residents, school groups, regional tourists and visitors from abroad?

I see from the numbers of countries and regions represented at this conference that the effective, sensitive public presentation of heritage is a goal shared by public officials and professionals involved in heritage all over the world. We have many tasks in common and many shared challenges. We are proud to have in the various branches of our Ministry many experienced professionals working in the Administration for Landscapes and Monuments and the Institute for the Archaeological Heritage. In the field of research we engage in dozens of rescue excavations and numerous major projects throughout Flanders every year. We devote significant annual funding to the preservation and in some cases restoration of endangered ancient structures, a problem, I am afraid, that will continue to grow more serious with the impact of traffic, development, and the gradual deterioration of ancient structures and sites. The archaeological, historical and architectural studies that arise as a result of this work have provided interesting and important insights in how we understand the history of Flanders in every period back from the present to the Middle Ages to prehistoric times. Through the use of a wide range of laboratory analyses and professional expertise, we know more than ever before about the building techniques, craftsmanship, diet, health and spiritual life of the generations who worked and worshipped in the cities and rural regions of Flanders throughout the centuries. New understandings have emerged about the prehistoric settlement of Flanders, about our medieval cities and about the transformation of a largely agricultural region to the modern community in the heart of the New Europe that it has become.

All this new information about the past is a valuable resource in helping us to understand the present, and to define our identity in the modern world. And I have to add a personal note here, because the enormous work that we have devoted to our heritage has another very powerful effect. Beyond the meticulously restored buildings and the wealth of scientific discoveries, we are gaining an important intangible benefit as well. In my travels throughout Flanders and on the occasions when I visit heritage works in progress, I cannot help but be deeply impressed by the sheer beauty of many of our ancient monuments, as places for reflection on the contributions over the centuries of so many artists, religious leaders, community officials and the public at large to the always evolving culture of this region.

It is a feeling that I know is shared by many here in Flanders. Just last Sunday on our annual Open Monument Day, an initiative of the Council of Europe, tens of thousands of Flemish residents flocked to archaeological sites, monuments and historical landscapes all over the region. This yearly event is a

cooperative undertaking of three levels of our government: the municipalities, represented by the Vereniging van Vlaamse Steden en Gemeenten (Association of Flemish Cities and Municipalities), the provinces, represented by the five Flemish Provinces and the Vereniging van de Vlaamse Provincies (Association of Flemish Provinces) and the Ministry of the Flemish Community, represented by the Monuments and Sites Division. It is organised by the Local Committees and coordinated by Erfgoed Vlaanderen (Flanders' Heritage) in collaboration with Toerisme Vlaanderen (Flanders' Tourism), Monumentenwacht Vlaanderen (Flanders' Monument Watch), VCM-Contactforum voor Erfgoedverenigingen (Flemish Forum for Heritage Associations), Vlaamse Confederatie Bouw (Flemish Builders' Confederation), De Lijn (the Flanders bus transport company), TV1 and Radio1. Each city or municipality develops their own programme of public visits and activities relating to the heritage of that specific locality. Yet they share a common theme. This year, the theme 'Symbols' offered a chance for the organizers and participants to reflect on how certain places have gained a larger significance than just their age or construction materials, and how some of the simplest and most utilitarian remains from the past can be seen as symbols of the anonymous ancient craftsmanship that produced them so skillfully. And linked with the ancient sites and monuments are exhibitions of contemporary Flemish art and culture symbolizing the contributions to our heritage that our society continues to make.

Of course the public interest here in heritage is not restricted to a single day of the year. Across Flanders we have many dedicated members of the local authorities, volunteers from associations, interested individuals and private partners who make significant contributions to the public presentation of our heritage. In addition to the efforts made by the tourism authorities, we have developed extensive educational and community-based programmes, offering the younger generation a chance to experience the excitement of archaeology and history connected with particular heritage sites. And as many of you may be aware, Flanders is in the forefront of the development of innovative presentation methods, based to a large extent on the use of multimedia and virtual reality. These new technologies offer visitors unprecedented access to the discoveries of the scholars: they can allow visitors to look down upon ancient cities and see their character gradually change. Through virtual reality they can examine complete reconstructions of medieval buildings of which only a few foundations remain. They can interact with carefully researched historical characters and they can instantaneously search through computerized databases of archaeological and

historical data to find precisely the topics they want. Later in the conference, I understand, you will be hearing descriptions of these developments and will have a chance to see some of the prototypes for yourself.

It is important to note that many of these advances in the public presentation of heritage sites has come as the result of Flemish cooperation with scholars of many nations, and I am pleased to say that some of the most important international partners are with us this evening. We in Flanders take it as a responsibility to work closely with our international colleagues, to abide by international standards of practice and to participate in the formulation of new professional codes. I am pleased, therefore, that one of the most important objectives of the conference is the discussion of a new charter for standards of public heritage presentation, stressing the role of the local community, educational programmes and the careful planning needed to make heritage sites a valuable resource for every citizen. And whether the public presentation is accomplished by means of volunteer guides, teachers leading school groups or by advanced computer technology, the obligation remains the same: to provide the public with an accurate, honest, informative and meaningful presentation. Its greatest measure of success will be to cultivate an ever-deeper appreciation for the importance and beauty of the material heritage that all of us share.

I will conclude by saying that the work in which this conference is engaged provides a valuable example of international cooperation in an age when the past can tear peoples apart rather than bring them together. Each of you comes to Ghent with your own rich heritage, and with the responsibility for its protection and effective presentation to the public. It is my hope that the coming sessions of this conference will offer all the participants an opportunity to exchange views, concerns and share innovative ideas and solutions in this vitally important field. My Ministry and its official heritage branches, the Monuments and Landscape Administration and the Institute for the Archaeological Heritage, together with the other official sponsors of this conference, the Province of East Flanders and the Ename Center for Public Archaeology and Heritage Presentation, stand ready to work with you to improve the practice of public heritage presentation, and to continue to deepen the extraordinary display of international cooperation that I see here this evening.

Heritage, technology and local development are topics that are not normally combined in a single conference. But I suspect that all of you will agree with me that it represents an exciting and potentially powerful challenge for all of us involved in the field of heritage. I again welcome you to Ghent and express

my appreciation to the Governor, the Deputy of Culture and other officials of the Province of East Flanders who helped to make this important event possible. I will closely follow your deliberations in the coming days and look forward to hearing about the conclusions and further projects that may emerge from your discussions.

On behalf of the Flemish Community, I wish you every success.

LOOKING TOWARDS THE FUTURE

Jean-Pierre Van Der Meiren
Deputy of Culture, Province of East Flanders

As Deputy of Culture of the Province of East-Flanders, it is my honour to bring this session to a close by expressing our appreciation for your participation in this conference and in the continuing work of international cooperation that lies ahead.

As all the speakers before me have stressed, improving the quality and effectiveness of the public presentation of heritage is one of the greatest challenges that faces scholars, scientists and heritage administrators all over the world. We believe that it should also be regarded as a public responsibility for those of us at all levels of government who are entrusted with the administration and promotion of cultural affairs.

As you have heard, and as you will see here in Ghent and at Oudenaarde and Ename, we in East-Flanders have long devoted considerable efforts and resources in preserving and presenting the archaeological sites, monuments and historical landscapes of our province. And we hope that you will find some of our experiences to be of interest, just as we look forward to hearing about your experiences in other places, during the sessions and workshops of the coming days.

At this conference, we have the opportunity of making history in a double sense. We can work together and formulate professional standards so that the history and heritage of our countries, regions and cities can be brought to life for the benefit of our students, citizens and community groups. We can also make history on a professional level by making the presentation of heritage a public obligation in the field of heritage, no less important than the connected fields of physical preservation and scientific research.

PLENARY SESSION: COMMUNICATING WITH THE PUBLIC

12 September 2002

THE CULTURAL PATRIMONY AND THE PUBLIC: AMBIGUITIES, EFFORTS AND CHALLENGES

Azedine Beschaouch
Scientific Advisor, UNESCO

It is well known that for centuries the concept of heritage has become more and more important in European thought. If we analyse what was done in Europe after the rediscovery of the ancient Greek and Roman civilisations, we realise that safeguarding antique buildings and objects can, with history and time, lead to what we today call heritage. It is therefore in Europe and thanks to European thought that the concept of heritage was able to develop worldwide.

It is interesting to remind ourselves, for instance, that there was much destruction when Europeans arrived as settlers after discovering Mayan art and civilisation. It is also clear that, as early as the seventeenth century in Europe, nobody would have agreed with what a bishop from Langda in Mexico wrote about the Mayans, from July 12th, 1562:

'Those people used characters and letters to write their books, their antique things and their science. We found a great deal of those manuscripts and, as there were superstition and lies from the Devil in every single one, we burned everything. Then, they realised what we had done and they were very sad about it.'

No-one now would dare to think that it is necessary to destroy another heritage. I myself come from a country, Tunisia, which has been colonised and I work in heritage. We owe to the settlers the fact that heritage has been safeguarded in the colonised countries. There will be others who do not agree with this, but I am completely convinced of it. Thanks to European colonial thought, particularly in the Arab world and in Africa, everything has been preserved, from mosques and masks of the Congo to objects that belong today to the Sudan's material heritage. From the point of view of typology, chronology and geography, the concept of heritage has expanded to the rest of the world. However, there are three types of problems.

The first one is about heritage's ambiguities, which you already know.

The first ambiguity is that heritage is associated with cultural identity. For almost ten years I have been associated with the UNESCO's activities, and I am still one of their advisers. I would not even think of finding fault with this organisation. Nevertheless, I have to criticise those who, for more than twenty years, kept talking about heritage by relating it to cultural identity in the UNESCO general conferences, and who almost triggered a disaster by only talking about cultural identity, conflating heritage and identity. Third World countries in particular talked and unfortunately are still talking about heritage only in terms of identity, despite the efforts of ICOMOS and UNESCO. This link between heritage and identity explains why heritage has become such a target, and why it was and still unfortunately is the first victim of violence.

I work in Bosnia Herzegovina for UNESCO, tackling the problem of the well-known Mostar bridge. I think that everybody knows what the situation is there, although I often have to explain that the Mostar bridge was not strategic. For me, it simply is a 'show bridge'. Although I do not accept violence, I can understand that some people destroy stations where trains laden with arms are due to stop. I can understand as well that people want to bomb an airport, but the reason why a show bridge was destroyed, which did not even allow cars to pass through, is simply because it was symbolic: indeed, it was the passage between the east of the town, which is Muslim, and the Croatian west of the town. This historic building was destroyed just because it referred to an identity. There are many similar examples throughout the world and ICOMOS often has complaints from the Near East and from Asia concerning destruction or the intention of violence toward historical sites that are all motivated by conflicting ideas of identity.

This is due to the meaning of the word 'heritage' itself, which is often mixed with the word 'inheritance' in English and Arabic. Heritage is therefore considered as an 'inheritance', rather than a 'patrimonium', which has to do with our ancestors. Some people have gone even further, insisting that heritage is linked with the concept of fatherland. It is very important to understand clearly the differences in words. When heritage is linked to a specific fatherland there are problems over cultural identity, as in parts of Europe, particularly in the Balkans. What is more, there are many perils which threaten Europe, such as regionalism, nationalism and the marginalisation of minority communities. We do not pay enough attention to those dangers. They are present in some countries and have led to the exclusion of a part of a country's heritage because some minority communities are linked to it. According to some people, minorities do not have the right to claim their heritage. Therefore, they, as well as the heritage they represent, are excluded. That problem

causes many conflicts and much destruction of heritage. It is worth mentioning, to ensure that politics not endanger the safeguarding of heritage.

The second ambiguity lies in the fact that heritage has become a global matter since the creation of the World Heritage Convention in 1972. Today, everyone would like to be represented on the World Heritage List. The World Heritage Convention has greatly contributed to achieve this universal concept of heritage. Though I have been twice the committee's president, I think that the World Heritage List unfortunately makes the concept of heritage too universal. Because of that reason, countries have tried more and more to belong to that list and to be represented, but it is dangerous: we are now facing a two-speed heritage. This is present in countries where UNESCO works to help safeguard their heritage, and where we have contacts with people. A two-speed heritage means that we have, on the one hand, a universal heritage safeguarded because it is prestigious and because it is on a list of hundreds of monuments world wide. On the other hand, unfortunately, there are thousands and thousands of buildings in developing countries which are not only in danger, but disappearing without anybody doing anything. Let us take the city of Peking as an example: the only monuments that are safeguarded there are the ones on the World Heritage List, whereas a significant part of the city, where there are several centuries-old monuments, is disappearing little by little. Indeed, the reports received by the World Heritage committee receive, as well as by UNESCO and ICOMOS, indicate that the monuments belonging to the World Heritage List are being well preserved. But what is the price paid for that? It is the disappearance of the rest of the heritage. Everybody is aware of this. This is an obvious ambiguity, between a prestigious and safeguarded world heritage, and the overwhelming majority of heritage which is disappearing.

The third and last ambiguity is about heritage and development. We do have financial resources to spend on heritage, which is a good thing, particularly from UNESCO and the United Nations, represented for development by the UNDP until very recently, and now by the culturaal heritage programme of the World Bank. The problem is that the link between heritage and tourist development has become the reason for preserving heritage. The states and public organisations that are in charge of safeguarding and preserving heritage often do it in order to develop it for tourist activities.

In my own country, Tunisia, what cannot be considered as being of interest to organised tours and trips is not subsidised. Some extremely important places of interest such as archaeological sites and monuments are therefore

being abandoned. We can see that this third ambiguity triggers perils, as states, international organisations and investors might give money to safeguard heritage sites which can be integrated into tourism. I would be grateful to the World Tourist Organisation if they would think this over. I have been working in Cambodia for ten years now. We do know how to preserve heritage, but we are struggling against this danger of linking tourist development and the safeguarding of heritage, where what does not belong to tourism cannot be subsidised. In order to try to avoid problems with cultural identities, we must respect cultural diversity. UNESCO has just published a universal declaration concerning cultural diversity, and you will see that some parts focus on avoiding conflicts over cultural identity and the importance of all heritage. All heritages should be considered as being equal, and only then will safeguarding heritage and respecting cultural diversity be possible.

Concerning tourism, how can it help safeguarding heritage? The concept of 'sustainable tourism', developed by the World Tourism Organisation, should be very precisely considered. How can we achieve sustainable tourism? A long-lasting tourism means that it does not inflict injury on the authenticity of heritage. I will take the second biggest town of Tunisia as an example to illustrate this: Sfax. Sfax is a very important harbour for Tunisia's economy. It is also a *medina*, a traditional town of the 9th century with impressive fortifications and a mosque from the 9th century as well. Nevertheless, because of tourism, all the city houses have partly been transformed into workrooms and shops. The town has lost its authenticity, and it now looks like an enormous *souk*. All the inhabitants are now living in the once-agricultural countryside. Thanks to this example, you can see that this town's authenticity has disappeared, although it still looks 'urban', with its ramparts, its streets and its mosque. The concept of authenticity does not only include physical, but also functional integrity, which is extremely important!

I will conclude with two main ideas which, I hope, ICOMOS will be able to develop in the next few years with the help of UNESCO.

First, I will talk about the presentation of monuments. We were attending a meeting about the new museum in Cairo and I had to interrupt the conference while some speakers were talking about Egypt's 24th dynasty. Even I, an archaeologist, have to look back in my books to understand what this means. It is exactly the same when people see the name of Tuthmosis. Indeed, apart from Nefertiti and Ramses, people are not supposed to know all the pharaohs' names by heart! We cannot present something without adding additional information about what was going on in the world at that time. If, in Ankara, for example, a sign

concerning the year 802 was displayed, the visitors would wonder what this was about, whereas if some information was added, no matter where they come from, visitors would be able to understand this civilisation's development, and therefore, its historical background. We would need to know that Harun-al Rashid was in power in Baghdad and Charlemagne in Europe, for instance, so that visitors would appreciate that, at the same moment in time, there was a Khmer Empire, a Muslim one, and the Holy Roman Empire. Public education is thus necessary.

Second, UNESCO very recently launched the 'Global Alliance for Cultural Diversity', a wonderful idea linked with the Universal Declaration. If I may say it bluntly, tourists from the north are the ones who consume the south's heritage. Therefore, the proposal I lay before you is to develop a safeguarding interpretation for a heritage between the north and the south in order for that heritage to not be endangered. What is more, the people from the north are the funders of that heritage: the European Union gives a great deal of money for heritage. I am not enthusiastic about the way those funds are spent, as the only way to achieve the preservation of heritage is to make sure that those funds are spent in accordance with a heritage ethic. Consequently, a new partnership like the Global Alliance for heritage between the north and the south should perhaps be developed. The funders should be able to rely on local expertise and make sure there is a real association and contact between the suppliers and the recipients, in order to preserve heritage.

In conclusion, I would say that we must always try to speak about the concept of long-lasting heritage because this idea of heritage is the only one that can be truly sustainable. And we should think about the means and approaches we have at our disposal to achieve that goal.

PROMOTING 'HERITAGE INTELLIGENCE' FOR SUSTAINABLE LOCAL DEVELOPMENT

Daniel Thérond
Head of Cultural Heritage Division
Council of Europe

The 5th session of the European Conference of Ministers responsible for Cultural Heritage in 2001 launched three initiatives:

- Preparation of a new international legal instrument dealing with the role of cultural heritage in dialogue between cultural communities, from a cross-disciplinary, trans-sectoral perspective.

- Frameworks of ethics and methods of interpreting cultural heritage based on practical case studies.

- A code of best practices for public authorities and the heritage sector for digitising cultural assets.

The Council of Europe brings together the countries of Europe to promote common standards and co-operate with other organisations and civil society. The Ename Charter could thus help to spread good practices and set standards.

Yet is necessary to consider cultural heritage within the knowledge society and the Internet economy. An innovative approach allowing the implementation of a new heritage policy can contribute to sustainable local development. Current trends towards commercialisation and industrialisation of heritage entail significant risks for the protection of cultural identities and Europe's economic development.

- Identity, cohesion and social ties, shared backgrounds and points of reference, and mutual trust are catalysts for the exchange of knowledge;

- The local sphere is the setting of a new kind of economic rivalry and offers opportunities for a new form of regional development based on

local skills, knowledge and culture.

- management of the workforce within the knowledge society must be replaced by management of knowledge and skills.

- the speed of technological innovation should not be allowed to exceed the rate of generation change, requiring constant, continuous adaptation;

- the all-pervasiveness of technology and the Internet, economic globalisation and demographic trends creating global interdependence necessitate a review of methods of governance.

Local competitive ability will thus lie in the capacity to marshal, share, acquire, utilise and invent knowledge. For heritage rules and challenges in the knowledge society differ from those prevailing in the industrial society. In the knowledge economy the raw material consists of intelligence and knowledge in all its forms, to be used for both non-commercial and commercial purposes through intensive use of ICT. Heritage continues to be regarded as a resource, but with new potential and opportunities.

The digital revolution

The possibility of digitising information of all kinds, whether images, sound or data, and processing it with ever more efficient database management software offers new opportunities for managing heritage assets, both tangible and intangible. These opportunities take the form of new services available via the Internet, on-board systems in vehicles, and media such as the DVD. These are not mere by-products of traditional heritage, but new heritage products in their own right. Seeing a picture in a museum or visiting an archaeological site is of course an irreplaceable experience, but translating the picture or the site into digital form may itself amount to a work of art, with the possibility of discovering hitherto unknown aspects imperceptible to the naked eye. This is similar to live entertainment filmed by a director, who has the possibility of using a number of cameras and is able to produce a new work suitable for public exhibition and distribution in multiple forms. Such activities make it possible to create a virtual heritage, which can exist in many digital networks, whether on the Internet or specialist extranets.

Local competitive attractiveness in the knowledge society: from heritage to 'heritage intelligence'

'Heritage intelligence' can be defined as a concept, methods and tools facilitating the identification, representation, marshalling and distribution (or sharing) of cultural heritage assets and the intangible capital on which the knowledge society is based. Apart from the traditional protected heritage, it takes into account the knowledge, skills, centres of excellence and organisational processes specific to a region, so as to offer effective responses to its sustainable development and competitive identity prospects.

Viewed from this angle, such an extended heritage concept could include:

- legacies of the past, such as folk arts and traditions and local customs;
- agricultural, craft, industrial and scientific skills;
- landscapes, the combined work of human beings and nature;
- the built cultural heritage (museums, architecture, archaeology, libraries);
- centres of media, artistic and sports activity;
- academic centres;
- centres of specialist know-how in the industrial and service sectors;
- financial and economic institutions;
- infrastructure (railways, roads, airports, electricity and telecommunications networks);
- diasporas and communities of all kinds;
- centres for managing community relations;
- opinion leaders.

Alongside traditional forms of heritage, centres of excellence of all kinds are increasingly regarded as components of a region's competitive attractiveness and specific identity. Such an approach entails assigning responsibility for the preservation and management of local cultural resources to a number of sectors. It is a cross-disciplinary, inter-ministerial field.

'Heritage intelligence': sustainable development and local specificity

In the context we have in mind here, sustainable development ties in well with the 'heritage intelligence' concept. In all likelihood, it is by espousing the idea of sustainable development combined with heritage intelligence that regions can make the most of their assets and enhance their constantly evolving local identity and public profile.

Regions' images have long been based on their tourist attractions. Yet the knowledge society the regions must cover a broader field and, for example, seek to attract foreign investors as much as tourists. They must promote their centres of excellence to the same extent as local produce. Regions could gradually endow themselves with a 'local signature', a visible trademark of their 'heritage intelligence'.

'Heritage intelligence', globalisation and technology

The content on which heritage intelligence is based can be digitised and made available over the Internet, potentially world-wide. This unprecedented coverage offered to all regions puts a premium on all the components of heritage intelligence. Local authorities are already attempting to make use of this opportunity to attract knowledge economy operators (investors, designers, research and development centres) and give new depth to their competitive strengths. However, it must be pointed out that this visibility entails a heavy heritage digitisation workload involving costs which many decision-makers regard as prohibitive, leading them to delegate the digitisation of whole areas of their heritage intelligence to the private sector. Failure to master this delegation process can have serious implications for the regions in that there is a risk that they may be despoiled of part of their assets.

'Heritage intelligence' and the market economy

The knowledge society places heritage intelligence at the centre of the new economy. The tourism industry, television and also the automotive, cinema, agri-food and training sectors use, and will make increasing use of, elements of local intelligence. For instance, the car industry will in the near future offer on-board tourism services on a fee-paying basis. Their content will consist of all kinds of heritage information.

The knowledge and skills-based service industries are developing quickly. They are potentially profitable business propositions since their potential clientele has now been globalised through the Internet. New markets are opening up for local products but in a tense, highly competitive environment, which it is important to know how to master.

In e-business and the extended company, management of the 'work brain' is taking over from management of the workforce. The labour force is less and less a source of added value and is gradually being replaced by automation. Know-how, knowledge and skills are becoming of vital importance. Centres of excellence are sought after regardless of where they are located around the world. The goods and services on offer can be seen to contain a growing share of 'heritage intelligence'.

The heritage professions will of course inevitably change, not only in the traditional conservation career streams, with some degree of transfer from traditional conservation tasks to presentational ones, but also through the emergence of new career streams which we doubtless cannot yet imagine.

'Heritage intelligence', the public sphere and globalisation

In the context of a globalised knowledge society the question naturally arises as to what is in the 'public domain', constituting a matter of public interest, and what comes within the competitive sphere. The notion of the public interest takes on an important new dimension. Public interest principles must take tangible form in institutional activities and in a global political consensus, given the globalisation of competition.

A number of similar but separate concepts must be defined: the 'public sphere', the 'public domain', 'global public goods', the 'public sector' and 'public service'. A global, world-wide debate on the concepts of the public good and services in the general economic interest is now essential to arrive at a positive definition of the notion of the global public good. The role of the cultural heritage

must naturally be taken into consideration here, and it is clear that a forum must be found for this debate, whether within the WTO or elsewhere.

Conclusion

It can be seen from the above that cultural heritage, in its capacity as a local development resource, is a collective responsibility. This conference shows that there is a generally perceived need to develop a new governance process, involving politicians and elected representatives (in both central government and local government, with its growing responsibilities in this field), conservation professionals, business circles (a 'civic-minded' business can participate in the public task of heritage conservation in a number of respects) and civil society as a whole. In this connection, the voluntary sector and associations will in future have a growing role inconserving and managing heritage. Heritage management is no longer perceived as a pre-planned exercise but rather as a collaborative process, a collective responsibility, a constantly developing project.

With the preparation of a new Council of Europe reference text a number of key themes should be brought to the fore:

- when we talk about heritage we now have to talk about citizens (individually or collectively), that is to say to place the subject in context rather than the traditional approach of simply dealing with individual heritage objects as such;

- the heritage concept is multi-disciplinary. Traditional scientific or administrative boundaries between the material and the immaterial spheres may continue to serve a purpose in operational terms and with regard to inventory and conservation techniques, but when it comes to developing the heritage's potential an object cannot be divorced from its inherent meanings and its cultural environment;

- from the Council of Europe's standpoint the question of interpreting and communicating on the heritage is vital. Guaranteeing citizens' right of access to the heritage of their choice goes hand in hand with recognition of the heritage of others. Europe's common heritage first and foremost consists of the ideals and principles to which states joining the Council of Europe subscribe. This entails accepting the right to be different, rejecting

the manipulation of history by taking shortcuts in interpreting past events and combating the chauvinism that can be engendered when the heritage is presented in a certain way.

- work is needed to change methods of governance with regard to both participation, the 'bottom-up' approach in heritage policies and the establishment of new forms of relationship not only between the public and the private sectors but also between a number of operators, who collectively assume responsibility for cultural assets and conservation of the resources that they represent. The profile of conservation professionals will naturally have to evolve at the same time as all the rest.

- lastly, it is a matter of taking action at a European level, before it is too late, working together on the sustainable development criteria applicable to the resources (knowledge and skills) of the knowledge society. The ethical and methodological aspects of themes such as interpretation and digitisation of cultural assets are key concerns in the knowledge society where everything changes fast.

The proceedings of this conference will undoubtedly provide food for thought in the international debate which it is the Council of Europe's role to promote.

WHY HERITAGE PRESENTATION SHOULD BECOME A SERIOUS PROFESSIONAL FIELD

Dirk Callebaut
Acting Director of the Flemish Heritage Institute, Belgium

It has been a wonderful opportunity this morning to listen to the remarks of the distinguished representatives of UNESCO and the Council of Europe recognizing the increasing importance of heritage interpretation and presentation in the 21st century. The remarks of Mr Beshaouch on the ambiguities, stakes and challenges of cultural heritage development and of M. Thérond on developing a public heritage consciousness show us that we are truly entering a new era in this field. And together with last evening's openingpresentations by the Governor and Minister Van Grembergen, it is clear that the time for moving forward with important new international initiatives in this field has arrived.

The long path that has led us to this conference from the early days of the Ename 974 Project and the other recent presentation projects of the Province of East Flanders and the Flemish Community has shown us the importance of cooperation and coordination on all levels. The Minister, Governor and Deputy of Culture all mentioned the importance of this close working relationship between all levels of government. And now as we turn to the possibility of cooperation on a European and wider international level, we are convinced that the time has come to create a more formal framework for cooperation in the field of cultural heritage communication.

In working closely over the last year with a core consortium from Wallonia, Luxembourg and Germany on the Francia Media Project and with the scientific advice and experience of ICOMOS, particularly its secretary-general Jean-Louis Luxen, we have begun to discuss and formulate the broad outlines of a proposed international charter that deals specifically with authenticity, intellectual integrity and sustainable development in the public presentation of archaeological and historical sites and landscapes. I believe that most of you have already had an opportunity to look over the initial proposal of the Ename Charter. For those who have not, you will find an initial draft of the charter included among the documents in your information packets.

Why a charter? Why the Ename Charter, in particular? We believe that the need for international consensus in the field of heritage presentation is essential. Regional governments, municipalities, tourist authorities, private firms and international organizations are increasingly investing in expensive and technologically advanced presentation systems as a spur to tourist development. Almost always they require substantial investment, both of public funds and the time and expertise of already overburdened heritage organizations and scientific institutes. And the final quality of these projects varies widely, from very simple to very advanced technology, from very basic data to elaborate and innovative multimedia programs. Some are oriented entirely to attracting tourists, some towards the local community. The quality of the contents varies widely as do the depth or reliability of their scientific contents. Of course this is an understandable situation. In this field, heritage groups have traditionally worked in isolation, and have not always been aware of effective presentation techniques developed in other regions. Nor has an acceptable international standard for the scientific reliability or intellectual integrity of the content of these presentations ever been systematically discussed.

In the late 19th and early 20th centuries, an almost identical situation prevailed in the field of physical preservation and restoration. Construction and restoration standards varied widely, with little agreement about the use of authentic or modern building materials, or the extent to which an original monument could be altered in the course of restoration work. But the world leaders in the field of material heritage gradually came to recognize that some accepted professional standards were needed to improve the quality of this important work.

Some of the major milestones of this growing awareness were:

- the Manifesto of 1877 of the British Society for the Protection of Ancient Buildings which was the first to note the importance of conservation over unrestricted and unsupervised restoration

- the 1931 Athens Conference of the International Museums office which established a general code of professional conduct in restoration work

- the ICOMOS Venice Charter (1964) which set out agreed standards of authenticity and good practice in physical conservation

- the ICOMOS Florence Charter (1982) and the ICOMOS Washington

Charter (1987) which expanded the principles of the Venice Charter to landscape and historic town centres

- the ICOMOS Charter for the Protection and Management of the Archaeological Heritage (1990) which first stressed the necessity of public presentation as 'an essential method of promoting an understanding of the origins and development of modern societies'

- on the quality and sustainability of tourist experiences, the Charter for Sustainable Tourism (1995) and the Agenda 21 Action Plan of the World Tourist Organization, World Travel & Tourism Council and Earth Council (1996) emphasized the importance of training, education and cultural awareness in the development of tourist sites

- in 1999 the World Tourist Organization established the World Code of Ethics for Tourism, which recognised the necessity of reducing to a minimum the negative effects of tourism on the environment and cultural heritage, and, at the same time, of maximizing the benefits for the inhabitants of tourist destination.

Thus the history of the preservation movement has gradually expanded from an awareness of the physical protection of heritage to recognition of the responsibility of heritage officials to communicate its significance to the public, both on local and international levels.

Yet because of the vast range of public presentation programmes currently operational at national, regional and local heritage sites and because of the wide range of presentation techniques being used (signs, live guides, audiotapes, costumed interpreters, virtual reality, physical reconstruction and 'open air' museum recreations), it now seems appropriate, in accordance with the aims and expressions of the earlier charters, to formulate a framework of general guidelines to maintain the quality of public heritage communication throughout the world. Such guidelines, and the reliable research data and expertise that can validate and support them, may offer better techniques for ensuring that local heritage sites are effectively presented to the public, with continuing benefits to the taxpayers and residents of the local community.

In the course of our preliminary discussions, we have identified four primary themes for our discussions today that should perhaps be the main

foundations of a new international charter for heritage presentation. They are expressed in the proposed charter's four main sections:

- Scientific and Professional Standards
- Planning, Funding, and Management
- Tourism Aspects
- Heritage Education and Training

The first of these sections, dealing with scientific and intellectual standards, requires serious consideration of how we can best translate highly technical scientific data into a form that can be enlightening to the non-specialist public. How can we judge the scientific or historic value of a heritage presentation, apart from its value as entertainment? Obviously the standards vary greatly from dry, if perfectly accurate, representations to the highly entertaining, if historically dubious excitement of historical theme parks. Yet what the landmark 1964 Venice Charter did for the standards of authenticity in the physical reconstruction of historic structures, we must now do for the imaginative public recreation of history.

The questions we must now pose are somewhat different: What are the acceptable limits of interpretation or reconstruction when the basic scientific data is incomplete? Do we indicate to the public what is purely factual and what is an interpretation? A plausible scientific reconstruction may be based on a well grounded and well researched hypothesis, but it remains a hypothesis nonetheless. At the very least we must determine what level of scientific documentation is necessary to validate heritage presentation programs: whether they are physical reconstructions, 3D computer models or recreated historical characters.

The second potentially vital aspect of this field is planning, funding and management of heritage presentation sites. At a time when the physical threats to heritage are constant and serious and when the staff and budgets of public heritage institutions are coming under increasing pressure to fulfil their scientific and professional responsibilities, we must nevertheless recognize that the presentation of recent discoveries of the archaeological and historical heritage to the general public is a responsibility no less important than physical conservation or pure research. Presentation will continue to be a part-time and secondary undertaking in the heritage field unless relevant legislation is enacted to require, and provide

funds for, some form of permanent, accessible public interpretation (publication, website, video) in every case where a site is excavated or a monument restored, especially in cases where the destruction of an archaeological or historical site has been authorised for reasons of modern development. From both academic and governmental guidelines, the scientific publication of the results of heritage research is already viewed as a moral and scholarly necessity. Yet it is also possible to argue that the work of scientific publication remains unfinished until the scientific information they contain is communicated to the public at large.

Likewise, there is the related matter of funding and continuing management. Every heritage presentation project entails substantial public investment, and it is crucial that the funds be spent wisely and productively, in order to make presentation a sustainable element of a community's historical landscape, not just a temporary curiosity. All too often, as many of us are aware, the decision to fund and construct an ambitious heritage presentation is based on unrealistic expectations of increased tourist revenue. And how often do these unrealistic expectations result in a continuing operating deficit and the almost inevitable decline in the level of maintenance at the site? Such miscalculations not only cost the taxpayers money; they can often discourage political leaders and heritage administrators from proposing additional projects.

Thus we need, above all, to be realistic and professional in the way that heritage presentations are conceived. We need to approach the planning of such sites in a fully professional way, bringing in the work of expert town planners, landscape architects, tourism experts and local administrators to determine what realistic and sustainable level of visitation can be reached at a particular site. The scale, expense and technological complexity of a heritage presentation should be appropriate to the location and available facilities, and likely environmental, traffic and economic effects (both positive and negative), of such a project should be realistically evaluated and taken into account in the project planning. This too should be included in an international charter.

That naturally leads to the complex issue of Heritage Tourism, the element of heritage presentation that historical theme park planners love to dream about, local merchants and private firms seek to get involved in and many local residents regrettably grow to hate. How often have unrealistic predictions of the economic benefits that a local community is likely to gain proved to be badly mistaken? And how often in this miscalculation, too, has that actually harmed the cause of a region's future heritage activities?

We believe the raising of tourist attendance figures or increasing tourist

revenue alone should not be the only criterion or goal for success. Heritage presentation must also serve a range of educational and social objectives for the benefit of the local community. For that reason the charter includes suggestions for effective and professional management that include close co-operation between tourism operators, public and private groups, regarding formulation of tourism strategies and promotions, the flow of visitor traffic and reasonable, tasteful use of public facilities.

Last but far from least is the issue of heritage education and training. We believe that every presentation programme should be seen as an educational resource for the community that funds and supports it. Its design should take into account its possible use in the curricula of local schools. In addition, the local community should be regularly updated on developments and new features at the heritage presentation site through the distribution of a newsletter, website, public lecture series or other means of public education, such as specially trained local interpreters. And needless to say there is the major challenge of creating acceptable academic and technical curricula for the training of professional designers, technology experts, guides, and managers of heritage presentation sites.

These, then, are four basic areas of initial concern if we are to improve and professionalize the public presentation of heritage. Other areas may indeed arise in the discussions of this conference and what we hope will be a productive international consultation in the coming months as the Ename Charter initiative proceeds. The draft proposal of the Charter is just a starting point for serious thinking and discussion, in which we hope that you, the participants in this conference, will continue to actively contribute and participate. It is both a work in progress and a symbol of our hopes for the great potential of heritage presentation as a professional discipline. In conclusion, I would like to stress that the Ename Charter is not intended to be a text that will be debated, drafted and then quietly filed away. It can be, if we all work together, a useful and indispensable code of practice for enriching public heritage appreciation in all our societies, no matter how different each of their distinctive monuments and archaeological sites may be.

This afternoon, we will have a chance to hold the first real discussions on these highlighted subjects, in the four specialised workshops dedicated to each of the major themes. And on Friday, we will meet together in the historic town hall of Oudenaarde to formulate some general conclusions that will have emerged from the papers presented and audience discussion in each of today's workshop

groups.

We thus will move from this morning's general concerns and philosophical reflections into the realm of recommendations for practical standards and techniques. As other speakers have mentioned, we value your experience and input as active partners in the formulation of the Ename Charter within the context of ICOMOS International in the coming months and years. We are hopeful that such a charter can be the first important step in establishing a standard of excellence and, no less important, creating an active consortium of international partners at the forefront of innovative heritage development.

I look forward to participating with you in this afternoon's workshops and I thank you very much.

WORKSHOP 1: SCIENTIFIC AND PROFESSIONAL GUIDELINES

THE IMPORTANCE OF SCIENTIFIC AUTHENTICATION AND A FORMAL VISUAL LANGUAGE IN VIRTUAL MODELS OF ARCHEOLOGICAL SITES: THE CASE OF THE HOUSE OF AUGUSTUS AND VILLA OF THE MYSTERIES

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The Ename Charter and Virtual Reality

The UCLA Cultural Virtual Laboratory, with which the authors of this paper are associated, was founded in 1997 and has two missions: creating scientifically authenticated virtual reality models of cultural heritage sites (which we call "CVR" models, for short); and of exploring ways of utilizing CVR models in research and instruction. Thus far, the lab has created models of sites from Lake Titicaca in Peru to Ani in Turkey; and from the Iron Age in Israel to the colonial period in the Caribbean. Our largest and most recently completed project to date is a digital model of the Roman Forum, the civic center of ancient Rome.

In support of the second mission, the laboratory has been actively researching distribution media and applications for its models. Media range from high-resolution 2D prints to immersive and interactive urban simulations. Applications include education, research, and tourism. A key example of the latter is site presentation, and the laboratory produced an orientation video for the early Christian Basilica of Santa Maria Maggiore in Rome and has related projects in the planning phase. One such project will be discussed in this paper: the documentary about the House of Augustus that we intend to produce with our partners in the Department of Archaeology of the University of Bologna.

In this paper we will discuss, from the point of view of practitioners of CVR, the general problem of the application of virtual reality technology to the presentation of cultural heritage sites, with special reference to the articles of the draft Ename Charter that mention or relate to virtual reality. (For the original text of the Ename Charter and its subsequent versions see p. 227)

The pertinent articles, as distributed in a text at the Ghent Conference in September 2002, are the following:

Article 9. In cases where the structural stability of a monument is not in danger, non-intrusive visual reconstructions (by means of artists' reconstructions, 3D computer modeling, Virtual Reality) should be preferred to physical reconstruction.

Article 18. The construction of 3D computer reconstructions and Virtual Reality environments should be based upon a detailed and systematic analysis of the remains, not only from archaeological and historical standpoints but also from close analysis of the building materials, structural engineering criteria and architectural aspects. Together with written sources and iconography, several hypotheses should be checked against the results and data, and 3D models 'iterated' towards the most probable reconstruction.

Article 20. Full scientific documentation of all elements in a presentation programme should be compiled and made available to visitors as well as researchers. This documentation should be in the form of an analytical and critical report, in which the archaeological or historical basis for every element of the work of presentation is included. This record of documentation should be placed in the archives of a public institution and should be published or posted on the Internet.

We begin by stating that, as practitioners of the art, we welcome the recognition accorded to virtual reality in the draft Ename Charter. We recognize the fact that the text of the Charter is simply a first draft and that suggestions for improvements have been invited by the authors. Thus, if we are critical of the draft Charter, it is solely with the aim of helping to craft the best possible final version of the text. Below, we will first provide some commentary on the draft Charter and discussion of some theoretical matters; and then we will examine two projects of the Cultural Virtual Reality Laboratory that can serve as case studies of the general issues raised by the application of virtual reality technology to site presentation; and, finally, we will conclude with some thoughts about the implications of this study for the Ename Charter.

Critical Commentary on the Language of the First Draft of the Ename Charter

To begin our critical commentary, we would note that, while the draft Charter does define several key terms in Articles 2, 3, and 4, it does not define what it means by "3D computer modeling" (Article 9), "Virtual Reality" (Article 9), "3D computer reconstructions" (Article 18), "Virtual Reality environments" (Article 18) or, for that matter, "3D computer simulations" (Article 10). It is possible that this omission is excusable because these terms do not have the fundamental importance to the Charter that the terms defined in Articles 2, 3, and 4 clearly have ("archaeological or historical site," "heritage presentation," and "public interpretation"). Nevertheless, even if a new Article 5 defining "3D computer reconstructions and Virtual Reality environments" is not needed, it would be desirable for the Ename Charter to state what it means by these and related terms, possibly in Article 18. It would indeed be advisable not to use so many terms (something probably motivated simply by a perceived stylistic need for variatio) but to limit the Charter to a single, well-defined concept such as "virtual reconstruction." This term has the advantage of contrasting nicely with "physical reconstruction," and it encompasses the various terms (which are by no means synonymous) that the draft Ename Charter utilizes.

The concepts of "model" or "simulation," which are implied by the term "virtual reconstruction," and that are used in the draft of the Ename Charter, need to be spelled out because they are by no means univocal. In the Cultural Virtual Reality Laboratory, we have found it useful to distinguish between four kinds of models: 1) original model; 2) state model; 3) restoration model; 4) reconstruction model. The Original Model shows just those bits of the ancient material that survive intact. The State Model shows the site just as it exists today, with the original surviving bits supplemented by later additions and any modern restorations. The Restoration Model is based on the Original Model and adds to it everything that has been destroyed over time. The Restoration Model may show any or all earlier phases in the history of the site. The exact phase or phases shown should always be specified. The Reconstruction Model is similar to the Restoration Model in that it entails fleshing out the actual remains to show an earlier phase in the history of the monument. The distinction is that we use the term Reconstruction Model when the surviving original bits are so few or exiguous as to require a great deal of hypothesizing to fill in the missing elements. For this reason, the Reconstruction Model is usually not built up from the Original Model, since so little remains that there is no point in creating an Original Model in the first place.

To a certain extent, the difference between the two terms, Restoration Model and Reconstruction Model, depends upon an intuitive judgment of the modeler, and it would be futile to quibble over whether, in a given case, one term or the other would be more appropriate. In practice, the Cultural Virtual Reality Laboratory tends to use the term Restoration Model for CVR models of structures such as the early Christian Basilica of Santa Maria Maggiore in Rome or the Cathedral of Santiago de Compostela in Spain, where the monuments still survive fairly intact and the CVR model mainly entails the removal of later additions to restore the aspect of an earlier phase. It uses the term Reconstruction Model for an archaeological site such as the Second Temple in Jerusalem, where there are almost no physical remains on which a CVR model can be based. In the case of some complex sites, such as the Forum Romanum, the individual constituent components of the site can be subject to either Restoration (e.g., the Curia Julia or Arch of Septimius Severus) or Reconstruction Models (e.g., the Basilica Julia and Basilica Aemilia). In this case, the practice of the Cultural Virtual Reality Laboratory is to create a Reconstruction Model across the entire site in order to provide a consistency of treatment.

In general, we view our categories as Weberian "ideal types," which are easy to distinguish in theory but hard to encounter in pure form in practice. For example, in the case of the House of Augustus model to be discussed below (see Section 4), for specific reasons to be mentioned we created a Restoration Model from a State Model, not an Original Model. Nevertheless, despite all the complexities of an actual modeling project, our taxonomy is useful because, like any Weberian typology, it forces us to define as clearly as possibly what, exactly, it is that we intend to model. Without such clarity, it could easily be possible, in making a virtual reconstruction, to commit the same kinds of fallacies (e.g., Cesare Brandi's famous "falso storico")[2] that have occurred in the history of physical restoration.

We now consider the three articles of the Ename Charter in which virtual reality technology is explicitly or implicitly mentioned.

In Article 9, it is not clear why the use of virtual reality, etc. should be preferred to physical reconstruction only in the cases when the monument is not in danger. Should this imply that virtual reality not be used in situations where the physical monument is endangered? We would argue that, as presently worded, there is a false antithesis between virtual (or, "visual") reconstruction, on the one hand, and physical reconstruction, on the other. In fact, both forms of reconstruction often can and should be used on the same site. Unlike physical

conservation, virtual reconstruction has nothing to do with consolidation and preservation of the physical remains: rather, virtual reconstruction (not unlike physical reconstruction in archaeology)[3] is a tool that can be used, by experts, to generate new discoveries and insights and, by the general public, to understand a site more quickly and effectively. For their part, physical interventions have the primary goal of ensuring the survival of the monument and the secondary goal of displaying it to the public.[4] Thus, there is no reason why there cannot be a virtual reconstruction when there is also a physical reconstruction (assuming that budgetary limitations are not a factor). For example, a physical reconstruction typically restores the monument to a certain phase of its building history, whereas the related virtual reality reconstruction can depict all the building phases in the history of the site.

Indeed, the power of virtual reconstruction to illustrate the entire range of a monument's history provides an important tie-in of the proposed Ename Charter to the Venice Charter. Article 15 of the latter states that:

All reconstruction work should however be ruled out a priori. Only anastylosis, that is to say, the reassembling of existing but dismembered parts can be permitted. The material used for integration should always be recognizable and its use should be the least that will ensure the conservation of a monument and the reinstatement of its form.

If explicit reference were made in Article 9 of the Ename Charter to Article 15 of the Venice Charter, the preference for "visual" (or, as we would prefer, "virtual") reconstruction would be anchored in an existing international charter. It could, indeed, present itself as reconciling a latent contradiction in the Venice Charter which, on the one hand, except for anastylosis,[5] rules out all reconstruction work (which could be useful to show earlier phases of a monument for which only traces remain) and, on the other hand, in Article 12 calls for the equal respect for all periods.[6] Thus, virtual reconstruction solves the conundrum of the Venice Charter which calls for the equality of all phases but which forbids the physical reconstruction of phases whose remains happen to be slight, nonexistent, or considered of lesser importance. This solution is all the more necessary now that, even among experts in conservation such as Alessandra Melucco Vaccaro, the solution of anastylosis has come under attack after the examples of the Stoa of Attalos in Athens, the Library of Celsus in Ephesus, etc.[7]

In this connection, we also note a contradiction that might well be

eliminated between Article 15 of the Venice Charter and Article 7 of the draft Ename Charter. The latter reckons with the possibility of "modern recreations of missing elements or modern reconstructions of missing fabric"; the former "rule[s] out" "all reconstruction work."

Article 9 could also be profitably linked to Article 7 of the ICOMOS Charter on the Protection and Management of the Archaeological Heritage. This article states that:

The presentation of the archaeological heritage to the general public is an essential method of promoting an understanding of the origins and development of modern societies. At the same time it is the most important means of promoting an understanding of the need for its protection.

Article 9 of the Ename Charter might justify virtual reconstruction as one of the most effective known ways to implement Article 7 of the ICOMOS Charter on the Archaeological Heritage than the use of virtual reconstructions. This would also link Article 9 of the Ename Charter more closely to the fifth bulleted point in its "Background" section which implicitly criticizes the ICOMOS Charter on the Archaeological Heritage for "not further elaborat[ing] acceptable standards or methods" of public presentation of archaeological sites.

Article 18 concerns modelmaking methodology and is probably inspired by Article 9 of the Venice Charter.[8] Here we see two major problems. First, the recommendation that "3D models [should be] 'iterated' towards the most probable reconstruction," gives off a quaint whiff of positivism. Presumably, the idea derives from the part of Article 9 of the Venice Charter which states:

"[Restoration] must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp."

But one of the strengths of virtual reality and computer graphics is the ability to represent alternative hypotheses in a way that, obviously, cannot be done at all on a physical monument and which can be done even in a traditional print publication only with some difficulty. Through the use of software switches, individual elements of a structure (the ceiling, floor, doorways, etc.) can — and should — be easily changed in accordance with the different theories of qualified experts.

Secondly, in Article 18 the fundamental issue of authorship and authority

is not addressed: who is supposed to make the "detailed and systematic analysis of the remains" on the basis of which the computer model is constructed? Whose alternative hypotheses are to be weighed and illustrated? Often in the history of CVR, the analysis and authorship has been entrusted to the hands of computer experts, not of art historians, archaeologists, etc.[9] The Ename Charter presents an opportunity to reduce the likelihood that this will happen in the future. The inclusion of apposite language would be consistent with the Athens Charter, the Florence Charter, and other relevant charters,[10] which mandate a key role for experts in any restoration or conservation projects. In the case study of the House of Augustus below, we will discuss a project of our laboratory in which the team of experts included an archaeologist, an architect with profound archaeological experience, and a restorer. This is the kind of interdisciplinary expertise that ought to be called for in the Ename Charter.

Article 20, undoubtedly inspired by Article 16 of the Venice Charter,[11] concerns the transparency of site presentation, including, presumably, virtual reality models: the documentation utilized to create all elements of a site presentation should be made available to the public. But in specifying how this might be done, the draft Ename Charter does not make reference to virtual reality. But it is clear that a CVR model must be as transparent, with respect to its documentation, as any other part of the site presentation program. Moreover, CVR documentation has unique requirements and offers special advantages as compared to some of the other forms. To begin with the latter, it is possible to include the documentation within the CVR file and to make it viewable upon request by a user at the same time that the model is being inspected. Finally, the documentation of a CVR model is one part of its metadata,[12] and there are emerging metadata standards for CVR models that the Ename Charter might well take note of and support.

The Relationship of Scientific Authentication to Modelmaking

Driving our friendly critique of the first draft of the Ename Charter in section 2 is a key value that we strive to embody in the work of the Cultural Virtual Reality Laboratory: scientific authentication. This entails the transparency of metadata (Article 20), and the role of qualified experts (Article 18). In Section 4 below, we will use two case studies to exemplify what we mean by scientific authentication of CVR models. In this section, we set the stage for the case studies by discussion of some theoretical and practical aspects of scientific authentication.

Whereas conservation aims to ensure the survival of the physical fabric of the monument, virtual reconstruction is a representation of knowledge. The first point to note is that these two activities are complementary, not competitive or mutually exclusive. We must both conserve the physical remains and reconstruct them virtually. Indeed, the relationship between conservation and virtual reconstruction is not merely complementary, it is also fruitfully dialectical. Traditionally, conservators have debated which of Riegl's monumental values (*Alterswert, historischer Wert, gewollter Erinnerungswert; Gegenwartswerte; Gebrauchswert, Kunstwert, relativer Kunstwert)*[13] and which of his methods (radical, art-historical, conservative)[14] should guide the work of restoration. Should a monument be restored to show its state when new, the moment when it reached its historical or artistic peak of development, etc.? These difficult issues will never be definitively resolved (though impressive efforts have been made, e.g., by Cesare Brandi, to do so),[15] but virtual reconstruction at least reduces what is at stake. Previously, the decision facing conservators about which phase to privilege was "all-or-nothing": a physical intervention cannot be ambiguous. In the age of digital technology, the decision about which phase to highlight does not disappear in physical terms, but, whatever the decision, the public no longer has to be deprived of a chance to view the monument (or, to be more precise, a representation of it) at any place and in all other phases which are not physically restored.

Scientific authentication of virtual reconstruction is accordingly important, not only for the sake of science, but also for the sake of conservation. If virtual reconstructions are to become an integral part of the work of conservators and other cultural authorities responsible for site presentation, then there is a duty to ensure that the virtual reconstructions are as meticulously executed and documented by qualified experts as are the physical interventions themselves. Just because a reconstruction is virtual does not mean that it can be done shoddily, quickly, or unprofessionally. Once a public institution puts its imprimatur on a virtual reconstruction, it will have an enormous impact on the public understanding of the monument. It will also inevitably (given the hypothetical nature of almost all reconstructions, virtual or physical) give rise to debate and controversy, which, predictably, will require the sponsoring cultural agency to explain and, at times, defend itself. Scientific authentication thus becomes an essential responsibility of a cultural agency, both in fulfillment of its mission to educate the public it serves and of its need to maintain the same high professional standards it observes in the other spheres of its activity.

A full discussion of what is meant by *scientific authentication* would transcend our space limits. Here we emphasize just the main points, which are, as noted: authorship by qualified experts; transparency of metadata; and a clear understanding of the typology of virtual reconstructions.

Virtual reconstructions are knowledge representations that are expressed digitally. As such, they are analogous to other knowledge representations created in other media. They are not in themselves scientific or nonscientific, just as a knowledge representation published in a printed book is not, in itself, scientific or nonscientific. The Cultural Virtual Reality Laboratory sees itself as a digital publisher of knowledge representations that are analogous to those produced in print by a university press. A university press's books are scientific in that they have qualified authors, are vetted by recognized authorities, and are produced in conformity with the norms of good scholarship.

Even though digital knowledge representations are relatively new, they do not present entirely new issues of scientificness in this sense. They, too, must have qualified authors; must be evaluated by reputable scholars; and should reflect the norms of good scholarship. They should contain explicit reflections about method, sources, and their own place in the history of their subject.

Since the sites modeled by the Cultural Virtual Reality Laboratory are frequently extensive in terms of space, time, and structural types, authorship of a CVR model more frequently involves an interdisciplinary team—which we call the Scientific Committee—than a single individual, as often happens in the case of a print publication. For example, the Cultural Virtual Reality Laboratory's Scientific Committee on the Basilica of Santa Maria Maggiore included a scholar who participated in the excavations under the church; and the scholar who wrote the most recent technical monograph reconstructing the early building history of the basilica.[16] Moreover, since the information on which a CVR model is based is not always published but sometimes must be found in the archives of the agency superintending the monument, and at other times must be gathered afresh from the site itself, we have found it useful to ask a representative of the superintendency to serve on the Scientific Committee. The representative (who may herself be a highly qualified expert on the site) can facilitate access to, or collection of, unpublished data. The representative can also ensure that the model and related digital product are used for site presentation. In some cases, as happened with the laboratory's Santa Maria Maggiore project, the representative of the superintendency even took the lead in writing the script used for the documentary created for the museum on the site.

The fact that a model is authored by a highly qualified interdisciplinary team should not give rise to the false expectation that the modeling process will be speedy or without risks. In the laboratory's experience, the modeling process is never a simple translation of the authors' mental image—even when that image has been worked out in detail in scaled drawings—into pixels on the computer display. When scholars are given the opportunity to experience the two-dimensional representation of a site that they developed in the months, years, or even decades before the modeling process begins, they inevitably discover that they made errors of commission or omission. In the case of the Santa Maria Maggiore project, for example, questions arose about whether the interior of the church was surfaced with stucco or left as bare brick; whether the ceiling was coffered or exposed; and about the materials and design of the floor. The model went through four major revisions over eighteen months before being declared finished by the committee.

Throughout the modeling process, a record must be kept of such debates and the ensuing decisions taken. This record constitutes an important element of the model's metadata. Metadata can be published in a separate document, as is foreseen in the draft of the Ename Charter, or it can be incorporated into the digital product itself. As an example of the latter, we would cite the laboratory's recently completed model of the Roman Forum (shown in the year A.D. 400), seen in figure 1.

In figure 2, the model is seen as projected onto the screen of the UCLA Academic Technology Services Visualization Portal. On the right, a metadata window has been opened to provide instant information about a variety of topics.

Our metadata falls into three categories: (1) catalogue metadata, which serves as a finding aid (including fields such as: name of the model; name of the modeler[s]; name[s] of the member[s] of the Scientific Committee; software used to create the model; version of the software; holder of the copyright; etc.); (2) commentary metadata, which helps provide background information to users about the nature of the evidence used to create the model as well as about any disagreements on the Scientific Committee or between the model and previous reconstructions; and (3) bibliography.

Two Case Studies: The House of Augustus and Villa of the Mysteries Project

The purpose of presenting these cases studies here is to provide to examples of recent CVRLab work regarding aesthetic and technical standards or conventions

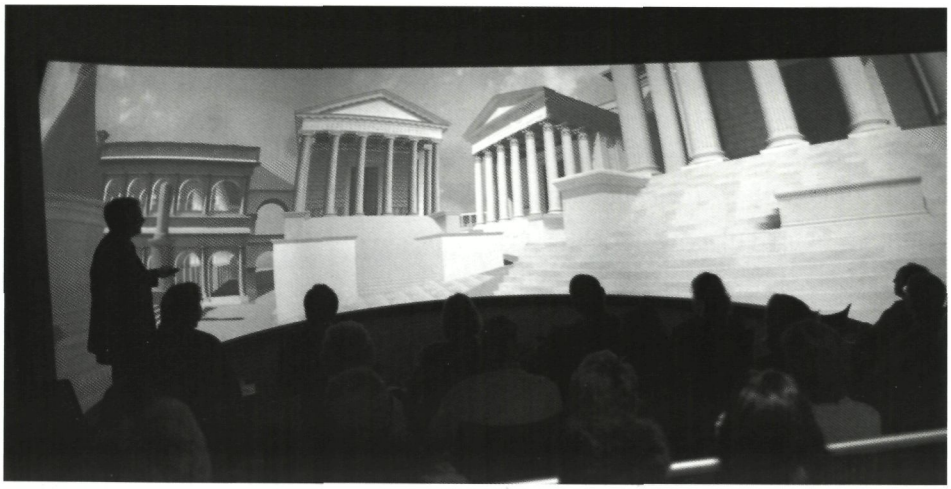

Figure 1: Detail of the UCLA Cultural Virtual Reality model of the Roman Forum, 10:00 a.m., June 21, 400 A.D. Photograph shot in the UCLA Academic Technology Visualization Portal, February 10, 2003 (model by D. Abernathy, et al.; photograph by J. Suo)

for virtual models of heritage sites.[17] The House of Augustus and the Villa of the Mysteries are sites are of high artistic and historical significance, but we believe it should be possible to establish a methodology whose fundamental principles can be applied to a variety of heritage sites from individual monuments or buildings to site topography, towns, cities and regions. One main problem is

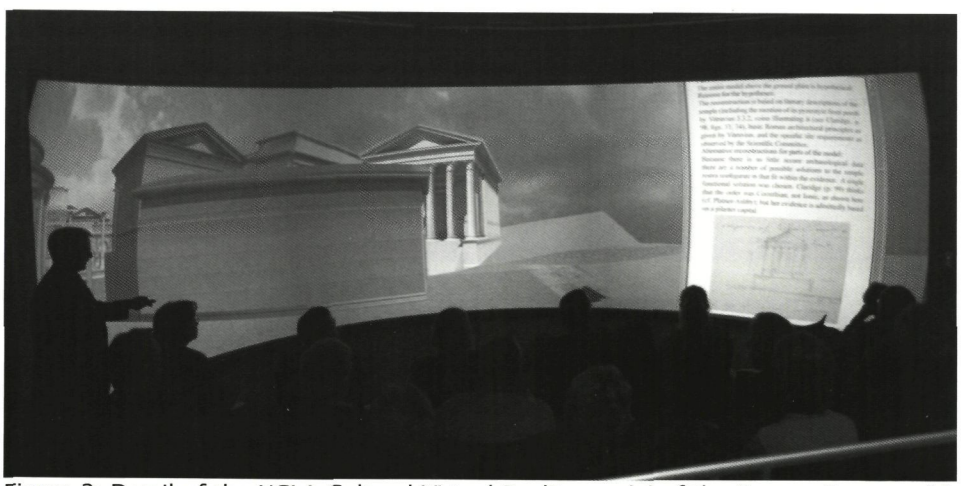

Figure 2: Detail of the UCLA Cultural Virtual Reality model of the Roman Forum, with the Metadata Window open, as seen in the UCLA Academic Technology Services Visualization Portal.

addressed here. We find is disconcerting that archaeological evidence is typically not distinguished from restored or reconstructed areas in virtual reality models. It can be very helpful, however, to distinguish between what is extant and what is hypothetical in a conjectural reconstruction of any kind, whether in a digital model or a traditional drawing. Therefore, these case studies present ideas about how to represent archaeological evidence in a virtual reality model when significant evidence exists, and secondly, how to represent restored or reconstructed features in a model when significant evidence exists.

The excavations on the Palatine Hill in the 1960s undertaken by Carettoni exposed the remains of a complex series of residential rooms between the temples of Victory and Apollo.[18] The siting and certain architectural and artistic features fit the ancient literary sources that explain how Octavian in 36 BC bought an existing property from the orator Hortensius with the intention of renovating and expanding it for his own residence. But lightning struck, an omen meaning that the site must be used for religious purposes. The Temple of Apollo was built and dedicated around 28 BC. If Suetonius is correct, Octavian began the renovations of this residence in 29 BC, not long after his defeat of Marc Antony and Cleopatra at the Battle of Actium in 31 BC. Excavations uncovered several lavishly decorated rooms in late Second Style wall-paintings or frescos, the most famous being a small room, a cubiculum, on the upper east side of the peristyle court, that may correspond to the small study described by Suetonius where Augustus (as Octavian was called after 27 B.C.) made important decisions.

This room is the main subject of this study on establishing standards and conventions in virtual reconstructions. The room is just 3.5 meters square, but its four walls were completely covered--floor to ceiling, corner to corner--in elegant wall-paintings, the style of which is known to art historians as the late Second Style due to their integration of architectural imagery with figural and mythological scenes centered on each wall. The ceiling was a shallow barrel vault, and it was entirely covered with highly detailed geometric and figural designs of stucco incrustations and paint. Carettoni found the room in fragments only, however, and it took over a decade of painstaking conservation and restoration by Gianna Musatti to reintegrate the thousands of small fresco fragments into the physical reconstruction in an environmentally controlled and protected space on the original site. Although the Palatine Hill is one of the largest and most significant archaeological parks in the world, the room has never been open to the public.

We modeled another cubiculum decorated in wall-paintings of the Second

Style, cubiculum 16 in the Villa of the Mysteries at Pompeii.[19] Maiuri excavated this villa in the late 1920s, and cubiculum 16 lies on the northwest side of it just off of the large atrium. *Cubiculum* 16 is only slightly larger than the studiolo, but unlike it, cubiculum 16 is comprised of an antechamber, two vaulted alcoves and a closet in the corner. The function of the room is debated, but it likely served as a bedroom or perhaps a small dining room.[20] The room is much better preserved than the *studiolo* in the House of Augustus. Its walls stand full-height, and one of the vaulted ceilings is well preserved. The room and the central portion of the villa are partially protected by a modern roof. Today the room is not open to the public, but visitors can look into it from a gated door.

Making the Original and State Models

Our study began by making models of the physical remains of each room. In the case of the *studiolo* in the House of Augustus, we refer to this model as a State Model, because the room today exists in a physically restored state, shown in figure 3.

Cubiculum 16 in the Villa of the Mysteries, on the other hand, has undergone only minor restorations since it was excavated, and therefore according to the terminology set out at the beginning of this paper we built an Original Model of it, shown in figure 4.

The subject matter of these sites consists primarily of wall-paintings or frescos, but the modeling methodology utilized here is adaptable to sites comprised of other materials such as architectural structures or topography. The methods described below can be repeated by others as well, although some trial and error is to be expected. The photographic equipment, hardware and software used are readily available and not expensive.

Making each model begins by recording the basic dimensions of the rooms and their wall-paintings as sketches in a field book, much like a traditional archaeological documentation. Particularly, the documentation included the horizontal and vertical articulation of each wall-painting, particularly the column heights and the centerline distances between them. These dimensions become invaluable later when the various photographs of each wall-painting are assembled to make a composite image.

Virtual reality models make extensive use of digital photographs, which are applied to the surfaces of wire frame computer models in a process known as texture mapping. The four walls of the *studiolo* were documented by dividing up each wall surface into 6 overlapping digital photographs. Two different digital

cameras were used, a Nikon Coolpix and an Olympus Camedia. Both cameras seemed equivalent at first, but we eventually decided to use only the Olympus camera, because its lense caused less distortion. The size of each photograph was 2274 x 1704 pixels. We desired to obtain a resolution of one pixel to one millimeter, or better, in the final composite images.[21]

As in a traditional photographic documentation project, lens distortion and lighting conditions are the two greatest obstacles to overcome. Lens distortion must be minimized, because it cannot be easily corrected. The small size of these spaces, and in the case of cubiculum 16 the delicacy of the original floor mosaics still in situ, prohibited the use of scaffolding and even tripods. With practice it was possible to hold the camera the same distance away from the wall, horizontal to the floor plane and with the optical axis perpendicular to the wall. Small variations in the sizes of the images to be mosaiced together are easily corrected in image editing software such as Photoshop or GraphicConvertor. Errors in the horizontal rotation of the images as well as minor parallax distoration can also be corrected with standard Photoshop tools. Even though digital photography is more forgiving than traditional film cameras and chemical development, severe parallax distortion

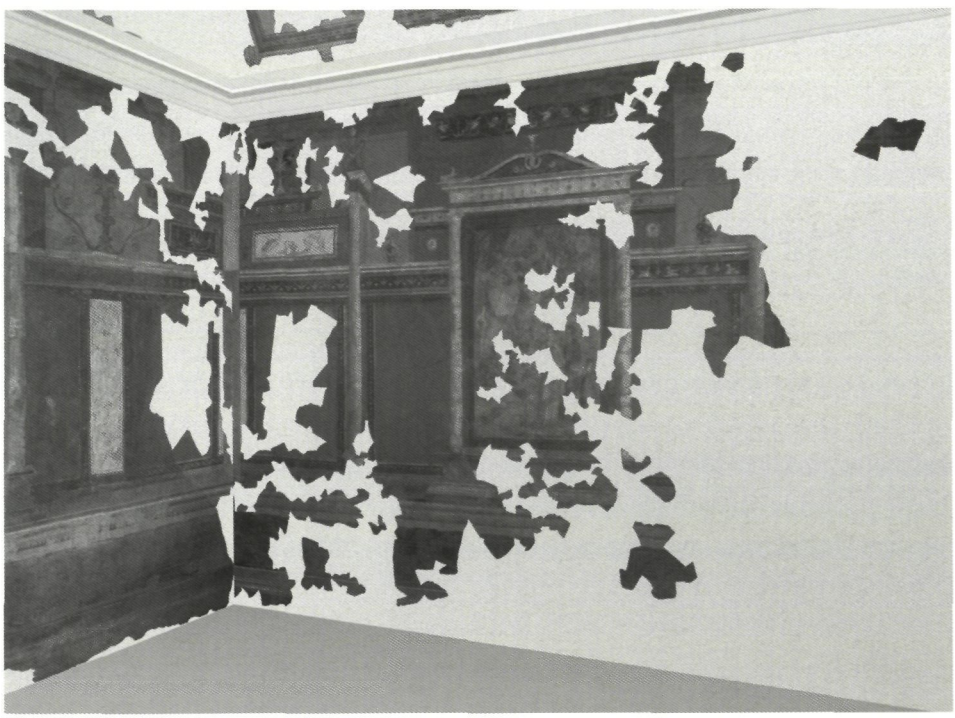

Figure 3: Room 15, the *studiolo* in the House of Augustus (30-20 BC), virtual reality model of the physical remains, referred to here as the "State Model" (by P. Stinson).

is impossible to correct, and even Photoshop cannot sharpen a completely blurred, out of focus image. Digital photography in larger spaces or of the exterior of a tall standing structure would require scaffolding or other mechanisms to properly position and stabilize the camera.[22]

It is important that each digital photograph overlap the edges of the surrounding ones by at least ten percent, so that the common features would match in the composite mosaic image. We downloaded the photographs at the site onto a laptop computer to check for obvious problems and to make sure that they overlapped one another as they were being taken. Occasionally, the cameras malfunctioned as well.

Lighting conditions are another major problem, because they influence the representation of color in the photographs. Fortunately, the *studiolo* today is evenly illuminated by fluorescent tubes, and no flash was required. If flash had been necessary, it would have been best to take the photographs in as dark conditions as possible, rather than using additional lights, because the camera's flash source is more easily controllable than other light sources and can be quantified scientifically. The photographic documentation of cubiculum 16 in

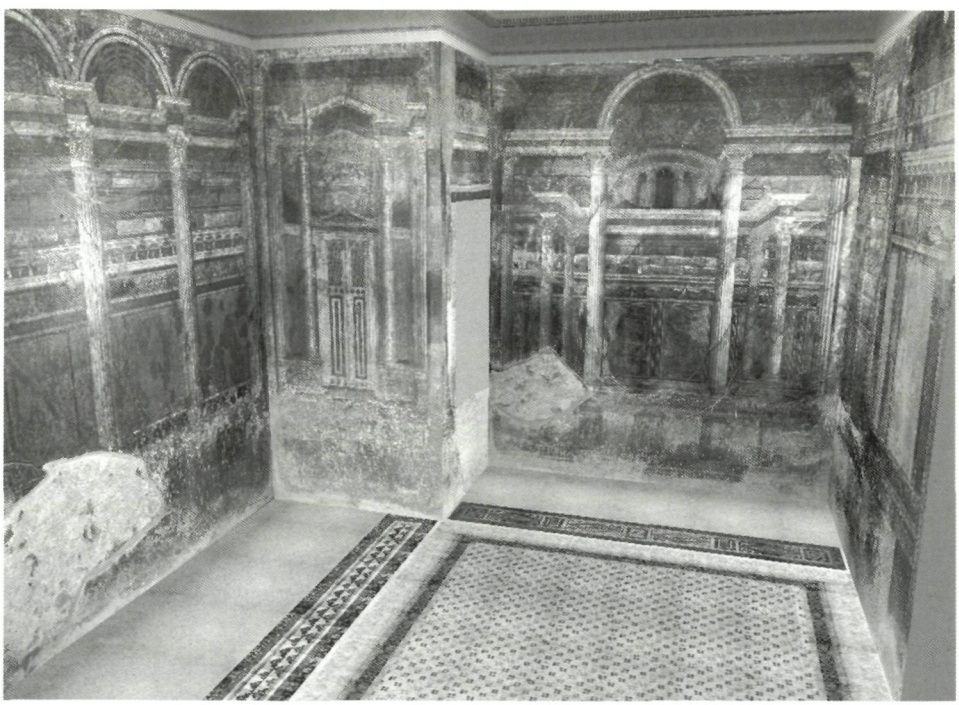

Figure 4: *Cubiculum* 16 in the Villa of the Mysteries, Pompeii (60-50 BC), virtual reality model of the physical remains, referred to here as the "Original Model" (by P. Stinson).

the Villa of the Mysteries was more of a challenge. Natural light comes into the room from several locations causing unwanted shadows and reflections on the wall surfaces, and photography at night was not permitted. Consequently, some walls were photographed in the morning, and others at different times. This was less than ideal, with the risk being that the variation in lighting conditions would not be possible to neutralize. The flash was employed on every wall surface (even when not advised by the camera's light meter) in order to even out the lighting conditions as much as possible. This technique worked reasonably well, except for the "hotspots" that sometimes occurred. Hotspots can sometimes be avoided by taking the photograph at a slightly oblique angle to the wall surface, but this adds more distortion to the image that is not always easily rectified.

Once the photographs are taken at the site, the documentation phase ends and the processing of the photographs in the lab begins. The photographs of each surface must be incorporated properly into composite mosaiced images. In our experience, off-the-shelf software such as Photoshop is actually preferable to photogrammetric rectification software that typically does not allow for the full range of adjustments that need to be made, including scaling, rotations, skewing, color saturation, brightness and contrast, etc. Another problem with rectification software is that it often makes these adjustments "automatically," whereas Photoshop allows one to work more methodically. The process begins by correcting any minor parallax distortion in the individual photographs that are eventually mosaiced together to form one composite image. Proportional adjustments, if necessary, are made based on the dimensions of each wall-painting recorded in the field book. For instance, each image was rotated in order to establish the correct horizontal and vertical limiting lines. Once this was done for all the images for a particular wall, they were integrated into one Photoshop file as separate layers. The overlapping edges of each photograph provided guides to the assembly of the final composite image. Matching all the edges usually required some adjustment in scale, rotation, and color saturation and hue. It is important to archive the original raw data files and the adjusted image files for future reference.

The neutral wall and ceiling surfaces that served as the background for the physical reconstruction of the wall-paintings were erased using the selection tools of the Photoshop and filled with a neutral color and a granulated texture (Figure. 3). The added texture serves two purposes, to distinguish the background from the preserved fragments of fresco, and to help prevent the background in the eventual computer model from appearing too smooth--like the surface of plastic--which is a common aesthetic problem in virtual reality models. The final composite

image of each wall-painting reached a resolution of approximately one pixel to one millimeter, which is enough to distinguish small cracks, the finest details and subtle variations in color and surface preservation.

Making the model itself is a process known as texture-mapping. The digital photographs are attached to a skeletal frame representing the three-dimensional geometry of the object being modeled. Virtual reality models are polygonal, meaning the surfaces of three-dimensional forms in the simulation are constructed of individual polygons, altogether known as wireframe geometry. Texture maps can be attached to single polygons or, more typically, to groups of polygons. Texture mapping is sometimes analogous to applying decorative wall paper to the walls of the room, although this is an oversimplication of the process.

We hope that the State Model of the *studiolo* and the Original Model of cubiculum 16 will serve as archives in the future. Models made solely for the purposes of recording the excavated physical remains are typically not made of cultural sites or excavated archaeological material, even though the value is obvious and indisputable. Virtual models solely of the physical remains, Original Models, or that record the state of the remains today including physical restorations and reconstructions, State Models, should not replace other forms of documentation such as photographs and two-dimensional drawings. We believe, however, that photographs and traditional drawings can only go so far in conveying the extent of preservation, and with virtual models, the palpability of scale and space become important use values as well.[23]

Making the Restored or Reconstruction Models

In addition, the *studiolo* and *cubiculum* 16 are both suitable for showcasing the strengths of virtual reality as a reconstruction tool. As mentioned earlier, the *studiolo* exists today in a physically restored state. The brilliant restorer Gianna Musatti painstakingly carried out the work over the course of a decade. Approximately 50% of the room's wall-paintings and stucco ceiling incrustations are preserved. The restorations fill in small to medium-sized losses in areas where significant original material remains. The fills, however, do not add a significant percentage of new surface area. The *studiolo*, therefore, is the ideal monument to continue restoration through digital means where Musatti prudently stopped. As stated earlier, these case study projects aim to assist scholars in the development of a set of standards and conventions for making virtual reality models when significant archaeological evidence exists, with the focus here being wall decorations rather than structural features. Secondly, we planned to carry out several restoration tests

on the large portions of the north, south and west walls of the *studiolo* that are not fully preserved. These experiments were carried out solely on the *studiolo*. We had a different idea in mind for cubiculum 16 of the Villa of the Mysteries, which will be discussed later.

The methodology developed by Musatti for the restorations provided the basis for the digital restorative method. Her method integrates replacements for missing fragments harmoniously within the whole, while making them distinguishable from the original, so that the restoration does not falsify the artistic or historic evidence. This method is consistent with current conservation and restoration theory regarding historical sites, as prescribed in the Venice Charter of 1964 and subsequent charters. Specifically, monochromatic pigments fill in selected losses. The intervening new colors are less saturated than the originals, but the new colors retain a similar color temperature. The new colors are also given a subtle surface texture in order to further distinguish them from the original material. Fine details and chiaroscuro shading are intentionally not restored. Our approach for the digital restoration follows along the same lines. In order to minimize confusion with the preserved evidence, the digital restorations fill in lost areas in the wall-paintings with schematic forms and lighter colors than the originals. We assume simplicity of appearance to be an aesthetic value that conveys the sense of uncertainty or conjecture in interpretation.[25]

To do this efficiently and in an organized manner, each restoration color was assigned its own separate layer in the Photoshop file, organized accordingly to the lower, middle and upper registers of the composition. Therefore, changes can be made to individual elements of the restoration without having an affect on others or on the layer holding the preserved fragments of wall-painting. The colors chosen for the restoration layers vary from wall to wall, since the level of preservation varies greatly. For instance the famous red cinnabar is preserved at inconsistent levels throughout the room.[26] The colors of the digital restorations do not exceed the color intensity of actual preservation in any general area, or in any detail. The final colors chosen are finally recorded in a database, to be easily accessible in the future if necessary.

As in the actual restorations carried out by Musatti, determining an appropriate level of digital color restoration is somewhat of a subjective matter. To our knowledge, there are no scientific or agreed upon standards either among professional painting restorers or archaeologists and historians doing either traditional reconstructions on paper or virtual models for making these kinds of decisions, other than the general rules of thumb discussed above. The notion

of restoration itself is today a highly controversial topic. In our experience archaeologists today are more cautious about interpretation and reconstruction than architectural historians and art historians who may consider it in some form or another as one of their professional duties. We hope that virtual means for restoration and reconstruction will be accepted among these varied disciplines that have cultural heritage in common.

Determining the aesthetic level of any digitally restored color begins by sampling the original color using Photoshop tools. The properties of this sample can then be easily modified to reach an appropriate hue for use in areas where it needs to be restored. The addition of a Photoshop granulation filter can provide a useful additional texture that removes aesthetic suggestions of plasticity from the digital fills. Four options of increasing color saturation or intensity are presented here for one portion of the south wall, shown in figure 5.

It is useful to study several options side by side one another. Generally, we arrived at colors somewhere in the range of 70-75% of the original intensity of the sampled colors. Below are rules of thumb for adjusting sampled colors. These guidelines, however, may not necessarily work for all reconstructions and all types of materials being simulated in a virtual model. Individual preferences may produce variations from these values, but we believe that the principle of 70-75% should be applicable in many cases.

Brightness and Contrast:
Brightness +20
Contrast -10

Grain Filter:
Intensity:10
Contrast: 50

For elements in digital reconstructions that are completely hypothetical--where no direct archaeological evidence exists--slightly different methods may be considered. For instance, no evidence for the floor paving of the studiolo exists. The floor paving design shown in the reconstruction is based on similar floors found in other rooms of the residence. Consequently, the floor reconstruction is represented only in grey tones. This method is comparable to the sketchy or loosely drawn lines that are sometimes used in traditional hand drawn reconstructions to convey a high level of speculation or hypothesis.

Of course, one could go much further and add more details to the restored areas where there is significant evidence. We plan to experiment with additional restoration, but arguably it is methodologically sound to concentrate on the overall impression and to restore in a conservative manner. Besides, no physical or digital restoration could ever match or recreate the complex aesthetic values of the *studiolo's* wall-paintings. The intent in the realization is to model the form of the paintings in a simulation of their ancient context, not to attempt a replication, as shown in figure 6.

For instance, simply copying and pasting preserved features into areas of significant loss would not be an appropriate method. It gives the false impression of complete preservation, and risks error. Moreover, the wall-paintings of the *studiolo* appear to be symmetrical, but closer inspection reveals many asymmetrical details and surprises.

These methods are adaptable to structural or architectural subject matter where significant physical evidence exists, as in the case of the CVRLab's

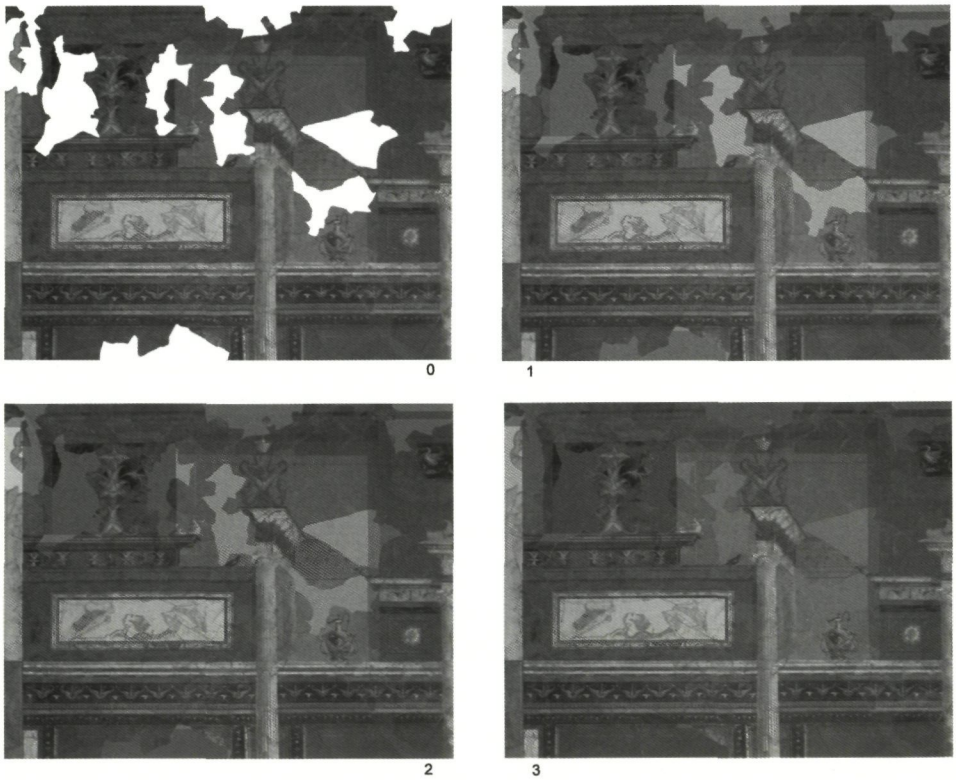

Figure 5: Room 15, the *studiolo* in the House of Augustus (30-20 BC), alternative "Restoration Models" showing four levels of color intensity in digital restoration of the south wall, top left corner (by P. Stinson).

Reconstruction Model of the ancient senate house of Rome, the Curia. The senate house survives today for the most part as a naked shell almost completely stripped of its original marble and stucco revetment.[27] Therefore it is appropriate to somehow indicate the presence of the surviving brick-faced walls as a monochromatic shade of red that can be turned on and off in the model. Most of the CVRLab's architectural models are Reconstruction models, because the physical evidence that does exist in situ or in loose fragments is usually too weathered, broken or battered as to be useful as texture maps in a virtual reality model. However, it is important to indicate which elements are still standing, or that can be positioned confidently near or exactly in their original positions, even if their surfaces and details have been restored or reconstructed.

Conclusion

In conclusion let us consider these projects in the wider context of computer visualization, archaeology and site presentation of cultural heritage sites. Proponents of virtual reality often tout it as the ideal tool for the reconstruction of ancient sites.[28] On the other hand, others have expressed reservations that virtual reality threatens to distance the archaeologist from objective archaeological data.[29] After nearly two decades of experimentation, one general perception remains that computer reconstructions of archaeological sites are expensive and sufficiently driven by scientific values.

Virtual reality does not have to distance the archaeologist from original scientific data, but this perception persists for real reasons. Virtual reality software is used today mostly by makers of flight simulators and video games, an association with commercialism that some archeologists and historians find disquieting at the very least. Also, what we refer to as the "Gee-Whiz!" factor holds too much influence on the content of many computerized reconstructions of heritage sites. It is clearly the time to propagate clear aims and purposes in our computer models instead of simply reifying our penchant for immersive and technical virtuosity.

This is why we propose here to establish a standard typology of virtual reality models that places a high priority on scientific authentication and the inclusion of the archaeological evidence as graphical representations in the models themselves. The main problem with computer reconstructions of archaeological sites (including virtual reality models and other types of computer models) remains that the language of visual and graphical communication in computer visualizations is not agreed upon. If virtual reality is to become a useful tool,

we must place a priority on the development of a formal visual language that is relevant to the current aims in archaeology and cultural heritage.[30] Archaeological evidence, or scientific data in general, are not typically given an aesthetic value by the makers of reconstructions. Why this has happened is not easy to explain, but it seems that archaeologists have not taken enough responsibility to ensure that their data are respected during the modelmaking process. Archaeologists who once hired draftsmen to draw their pictorial reconstructions now hire graphic design students or young architects who may not be as interested as they are in historical or scientific accountability. Contributing factors must be that making a model of the physical remains before any restoration or reconstruction requires a commitment to a more thorough level of photographic documentation than is usually required, as well as additional funds and time.

It was true several years ago VR models often consisted of low-resolution, low-polygon count features, and at the same time they required the use of expensive supercomputers to number crunch their real-time experiences. This is no longer true. Low polygon count models still run faster in real time, of course, and real-

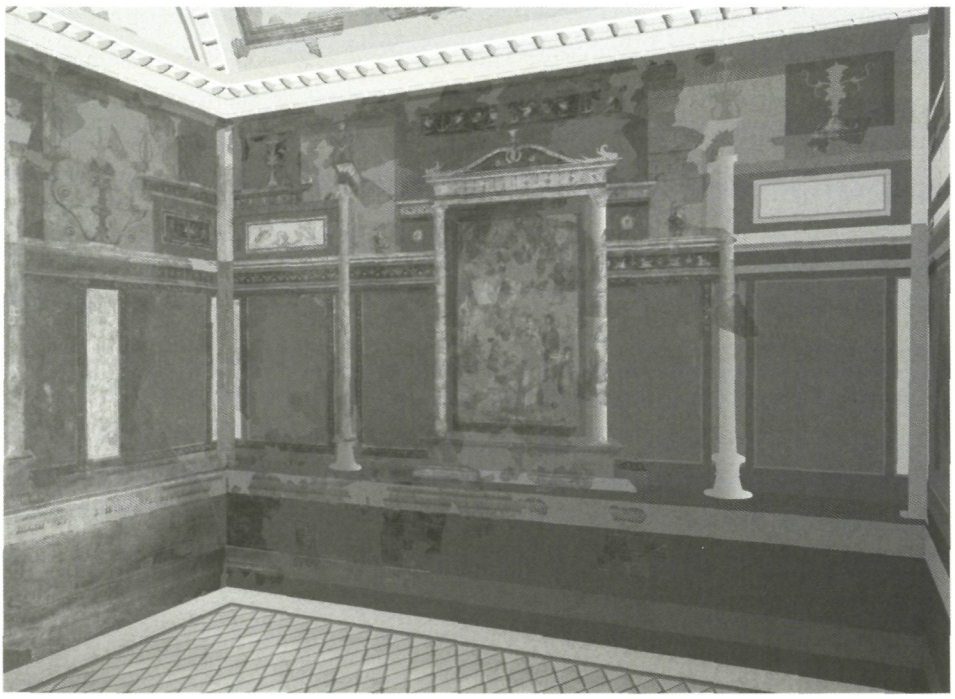

Figure 6: Room 15, the *studiolo* in the House of Augustus (30-20 BC), virtual reality model of the physical remains with losses restored, referred to here as a "Restoration Model" (by P. Stinson).

time shadows are still not possible due to hardware constraints. The Cultural Virtual Reality Laboratory has worked very hard in recent years, however, to overcome these problems and others. For instance, our master models contain all basic dimensions. Very detailed features such as Corinthian capitals are simplified considerably, for the time being, but in all other respects we have the capability of putting as much detail into the models as required by the scientific data at our disposal.[31] For that matter, it would be nearly impossible to "perfectly" model a Corinthian capital using traditional CAD tools and its interface. The "accuracy" of a model or a graphic representation on a computer screen is entirely idiosyncratic. There are many possible "accuracies."[32]

Virtual methods are not easily produced either; this is also a myth. Often it is said that one of the great advantages of computerized reconstructions is that they can be changed easily to accommodate alternative ideas and so forth. This is true in principle, but computer models, especially virtual reality models, are becoming so complex that making even relatively minor changes sometimes requires fundamental alterations to the underlying database structure of the model. Virtual reality models are much more complicated than standard CAD models. For instance, due to hardware limitations, VR models need to include multiple levels of detail or LODs (which may not be required in five years, however). A Roman Corinthian style column, for instance, should be modeled in at least three levels of detail. The user sees the low-resolution model from a great distance. The higher levels of resolution replace the lower ones in sequence as the user approaches nearer to the column, shown in figure 7.

For this reason and others, the term "database" is more appropriate to describe the vast network of integrated elements in virtual models. For instance, the studiolo and cubiculum 16 models are small, but their high-resolution texture maps require over 60 megabytes of memory each. Some of the technological problems of creating virtual reality models suitable for applications in archaeology are rapidly disappearing, though. Making these models on relatively low cost PCs is commonplace today, but was impossible just five to seven years ago. Virtual reality models were once constrained to using low-resolution texture maps because of hardware limitations as well. This is no longer the case, and within a few years LODs will probably be a thing of the past as processing power increases.

Few would dispute today, however, that the potential benefits of virtual reality applications in archaeology and the cultural heritage industry are wide-ranging, both as a communication tool and as an aid to archaeological and historical interpretation. In the future scholars and students of ancient art around

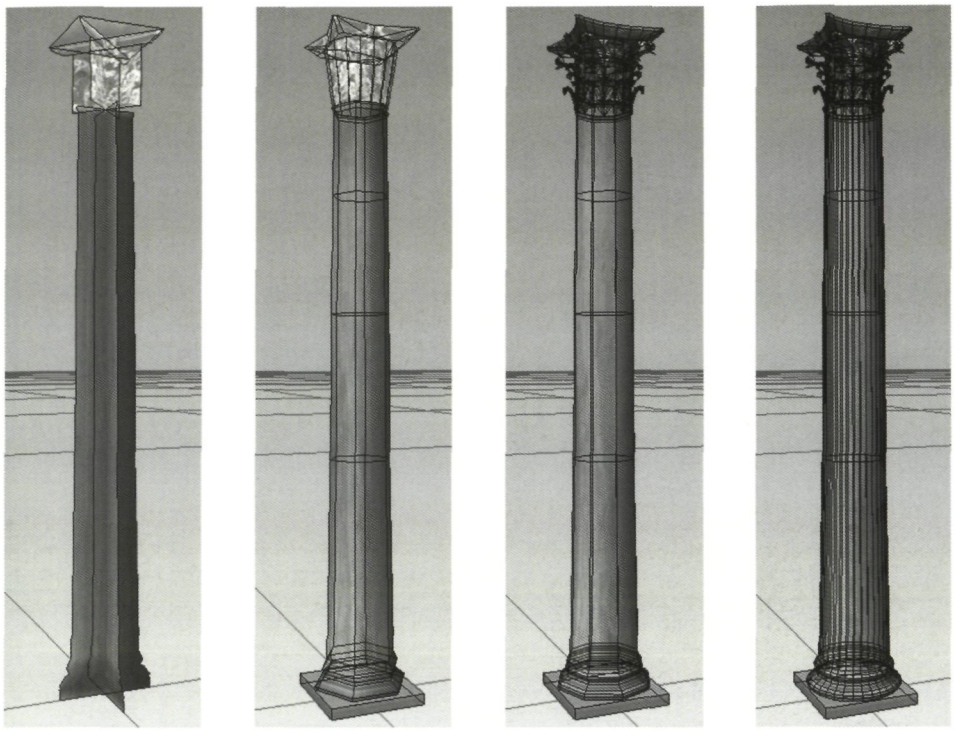

Figure 7: Levels of Detail (LODs) for a Roman Corinthian column.

the world might view and study models like the *studiolo* in libraries of digital information equipped with virtual reality theaters.[33] The Cultural Virtual Reality Laboratory has experimented with practical applications in several ways, from its website to classroom environments to museum installations. On its website (www.cvrlab.org) is an interactive virtual environment that combines a dynamic time-line of the ancient Forum Romanum in Rome which changes dynamically with a mouse-driven time line slider, Quicktime reconstructions of monuments (including alternatives), and archaeological and historical metadata, shown in figure 8.

Recently, the lab in collaboration with UCLA's Academic Technology Services (ATS) created a similar interface in ATS's on-campus virtual theater, shown in figures 1 and 2.

These two solutions approach the problem of digital information dissemination on two important platforms, the web and the virtual theater classroom, or macro and micro scales, respectively. As mentioned, the laboratory has also produced one documentary for use in site presentation. Many other examples of the use of virtual reality and computer graphics can be cited. At

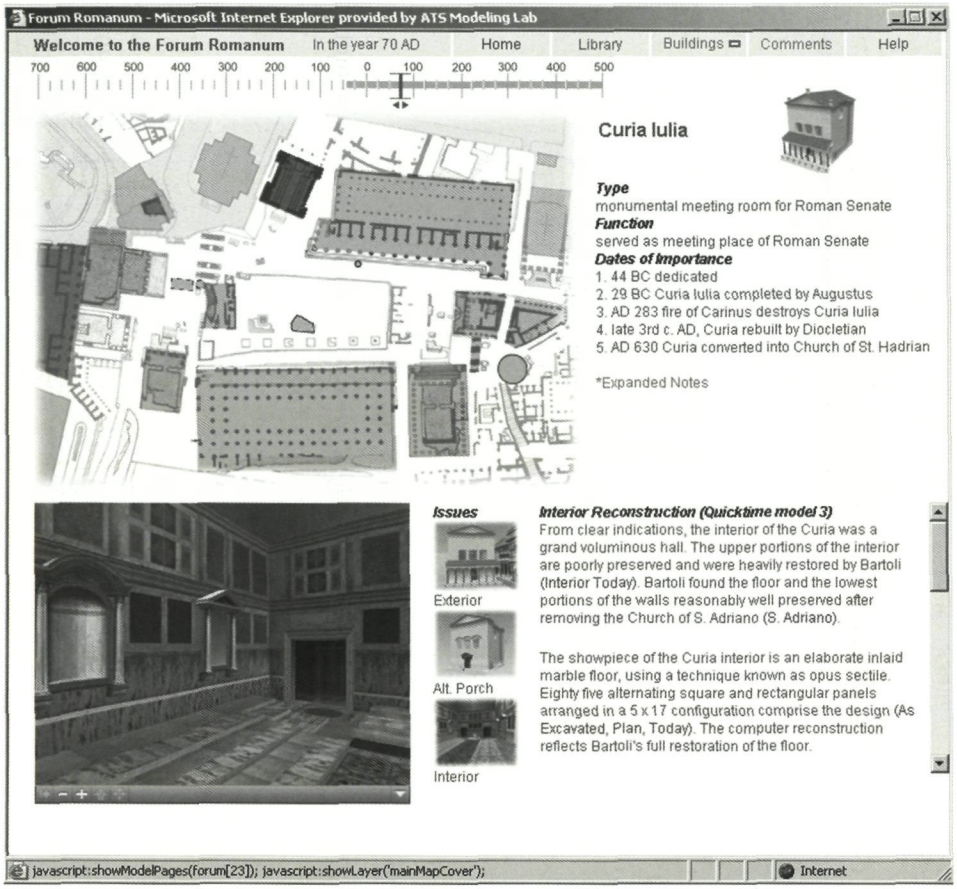

Figure 8: UCLA CVRLab website showing interactive Forum Romanum project (www.cvrlab.org).

Segedunum at Wall's End, UK, visitors ascend a tower, from which they look down on the Roman ruins. As they watch, reconstructions of the various phases of the site are projected on a screen located in front of them, so that they can contrast "then" and "now." A similar system was created at the medieval archaeological site of Ename, Belgium, though using a kiosk on the ground rather than a theater in a tower. At the museum at the Foce del Sele near Paestum, Italy an elaborate multimedia display allows visitors to experience the excavations of the site, step by step. The ARCHEOGUIDE Project has taken the further step of bringing the virtual reconstruction from the museum or classroom to the site itself. Using Augmented Reality technology, it allows visitors to see both the real world of the archaeological site of Olympia, Greece along with reconstructions and scenes of ancient life.[34]

Visualization techniques of all kinds, whether two-dimensional plans,

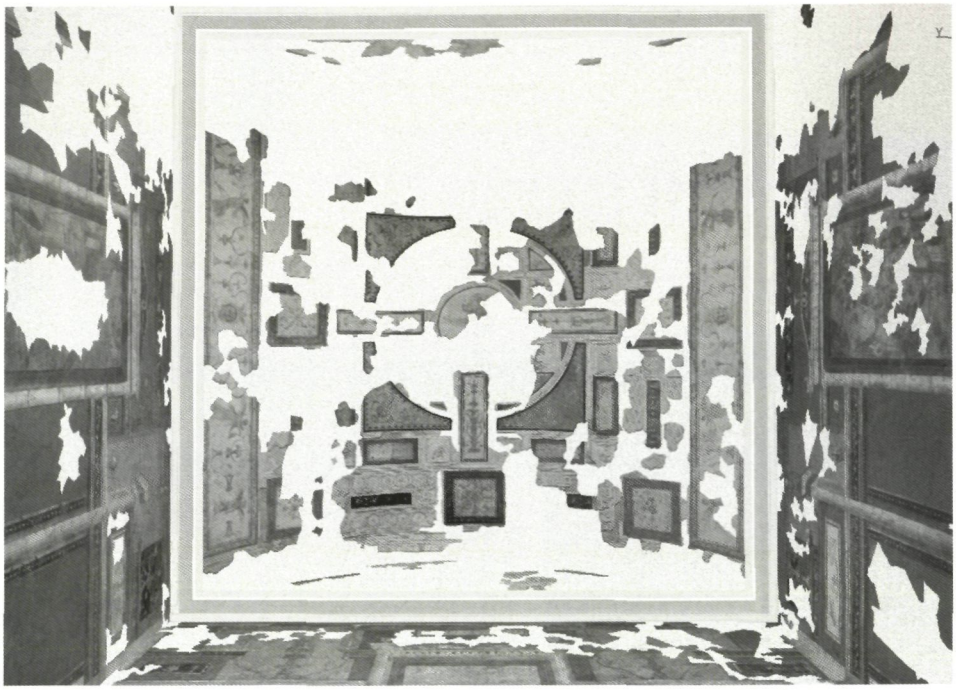

Figure 9: Room 15, the "studiolo" in the House of Augustus (30-20 BC), State Model showing tondo in ceiling, view looking straight up from floor level (by P. Stinson).

models of digital terrain data useful in GIS simulations, or virtual reality models of the like described here, have completely permeated archaeological publications of all periods and fields.[35] Daniela Scagliarini of the University of Bologna trains her students of classical archaeology in similar documentation techniques we used for the *studiolo* and *cubiculum* 16. She and her students have built a virtual model of the excavated remains of a whole house at Pompeii.[36]

Archaeological research aims and interpretation can also be improved by virtual modeling techniques. In fact, digital modes of representation and interpretation call attention to difficult archaeological problems and to the methodologies used to decipher them. The full three-dimensional context must be considered. With traditional methods of orthogonal or perspective drawing, one is naturally inclined to focus on areas where the evidence is better preserved, or ignore areas where evidence is lacking. Often different or new interpretations are advanced or research aims are facilitated through the process of making the model or through the interactive viewing of a completed model. One example of this arose during the construction of the State Model of the studiolo that deserves mention here. Modeling the low vaulted ceiling of the studiolo was a challenge,

Figure 10: Cubiculum 16 in the Villa of the Mysteries (60-50 BC), virtual reality model of the physical remains, with hypothetical reconstructions of beds in the alcoves and lighting simulation, referred to here as a "Reconstruction Model" (by P. Stinson).

especially the tondo in the center. For instance, a digital photo taken of the circular motif from below cannot be simply applied as a texture map to the wire frame model of the vault, because it would be distorted by the curved geometry of the model and appear as an oval. In fact, the circle in the ceiling is actually an oval, but when viewed from below it appears as a circle, a simple form of cylindrical anamorphosis. Therefore, the texture map for the tondo was constructed almost as conceived of by the ancient artists--as an oval--so when it was applied to the curved wireframe model, the sides of the oval would be foreshortened; consequently the illusion of the circle is simulated in the virtual reality model, as shown in figure 9.

This example illustrates how virtual reality has the potential to further research aims. It is not that this realization about the tondo was not possible previously by studying photographs, plans, elevations, etc. Interacting with it in an immersive environment simulates what it would be like if one could be in the actual room as it exists today. Virtual interaction with the model, however, heightens the probability for the furthering of research aims. In this case, the process of making the model was crucial to making this discovery, but it is not difficult to imagine how further interaction with the finished model--panning

around the room, zooming into particular details--increases the probability for more cognitive gains. In the case of the *studiolo*, the model could also provide exposure to its significant artistic works for many scholars and students who would have difficulty otherwise, because the room has never been open to the public; its wall-paintings are not published widely, and the published photographs are not comprehensive and are small.[37]

Another model of cubiculum 16 in the Villa of the Mysteries reconstructs lighting and a hypothetical furniture layout, shown in figure 10.[38]

Rooms in Roman houses rarely had windows that let in direct sunlight. Artificial lighting from oil lamps would have been necessary in most rooms beginning in the late afternoon. This model attempts to simulate an evening setting with the small room being artificially lit by two oil lamps.[39] The beds in each alcove illustrate the notion that the room was probably used primarily as a bedroom.[40] The model is not definitive, but it illustrates the vast potential for analyses of lighting and social settings. Several observations are now possible to make that would have been far more speculative if not for this model. For instance, the simulation of the lighting clearly indicates that several more lamps than shown

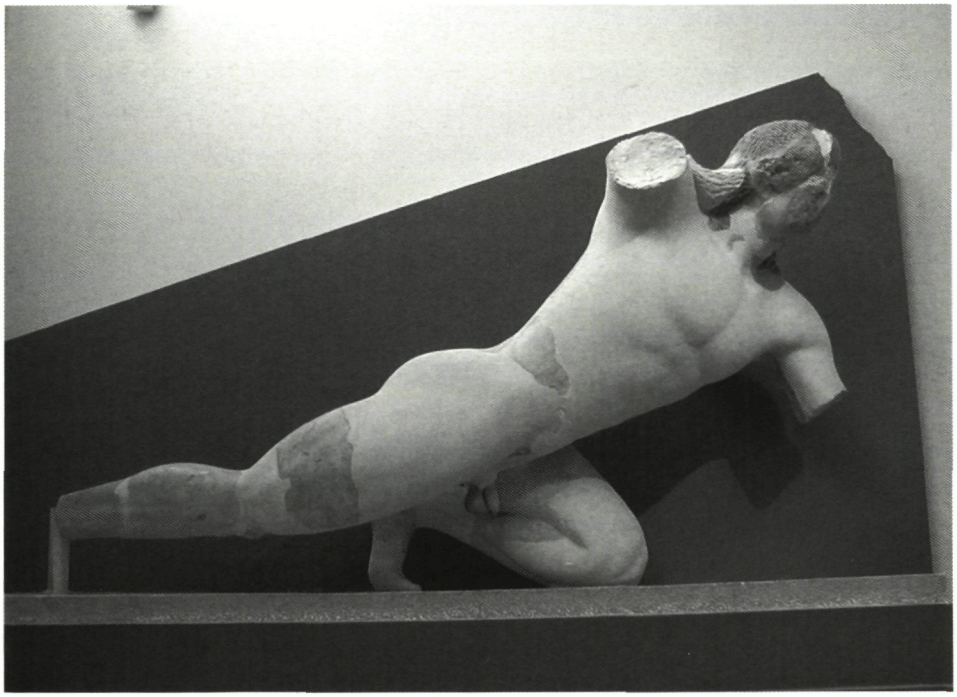

Figure 11: Restored sculpture from the pediment of the Older Parthenon of the Athenian Acropolis (photograph by P. Stinson).

here would have been required to completely illuminate the room at night. Also it might be interesting to art historians and archaeologists that the lamps illuminated mainly the upper parts of the walls and their elaborate architectural depictions in the wall-paintings, leaving the lower parts in the shadows. The lower parts of the alcove walls were also hidden behind the furniture. Also, the fall-off of light across the walls highlighted some aspects of the paintings more than others. What does this say about the composition of the paintings? In ways that traditional drawings could never function, simulations such as this one could potentially elevate the traditional methods of interpreting Roman wall-painting and the functions of rooms like this one in Roman houses of the mid-1st c. BC.

As mentioned earlier, for the *studiolo* and *cubiculum* 16 projects, we have studied carefully those successful physical reconstructions that clearly define the original materials from the restored interventions, that at the same time communicate an overall sense of unity and completeness, exemplified in figure 11.

We have also reevaluated many examples of the most extreme form of reconstruction of archaeological sites, anastylosis, or the rebuilding of an ancient monument using the original materials, as exemplified by the famous facade of

Figure 12: Reconstructed Facade of Library of Celsus, Ephesus, ca. 114 A.D., reconstruction completed in 1978 (photograph by P. Stinson).

the Library of Celsus at Ephesus, shown in figure 12.[41]
Although controversial, the methodology of anastylosis was executed consistently and clearly, following closely the principles set forth in the Venice Charter.[42] Virtual reality, however, provides an alternative solution to several problems currently plaguing site presentation. Mass tourist attractions like the Library of Celsus facade at Ephesus arguably jeopardize the quality of the each visitor's experience because of the resulting deterioration of archaeological sites, and the rising costs of site maintenance.[43] Anyone who has visited Ephesus on any given day during the height of the tourist season will understand immediately the real problems that monumental physical reconstructions create for themselves.

This raises a final issue: the relationship of article 15 of the Venice Charter and the article 9 of the Ename Charter. Should anastylosis still be exempted from the Venice Charter's prohibition on all reconstruction work on the actual physical remains? Based on the developments in the fields of both physical and virtual reconstruction recounted in this paper, we think that it should not.

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Endnotes

1 Bernard Frischer conceived the paper and invited P.T. Stinson to co-author it with him. Frischer wrote sections 1, 2, and 3; Stinson wrote section 4; both authors contributed to section 5.

2 Cf. C. Brandi 1963, 36.

3 Cf. the ICOMOS Charter for the Protection and Management of the Archaeological Heritage, Article 7: "Reconstructions serve two important functions: experimental research and interpretation."

4 Cf., e.g., B. M. Feilden 1982, 3: "Conservation is the action taken to prevent decay. It embraces all acts that prolong the life of our cultural and natural heritage, the object being to present to those who use and look at historic buildings with wonder the artistic and human messages that such buildings possess."

5 Anastylosis was earlier approved in Article VI of the Athens Charter: "In the case of ruins, scrupulous conservation is necessary, and steps should be taken to reinstate any original fragments that may be recovered (anastylosis), whenever this is possible; the new materials used for this purpose should in all cases be recognisable."

6 Cf. Venice Charter, Article 11: "The valid contributions of all periods to the building of a monument must be respected, since unity of style is not the aim of a restoration. When a building includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archaeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance of the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work."

7 Cf. A. M. Vaccaro 2000, 231-232.

8 Cf. Venice Charter, Article 9: "The process of restoration is a highly specialized operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument."

9 On this problem, see B. Frischer, F. Niccolucci, et al. 2002, 10-13.

10 Cf. Athens Charter, Resolution 2: "Proposed Restoration projects are to be subjected to knowledgeable criticism to prevent mistakes which will cause loss of character and historical values to the structures." Florence Charter, Article 15: "Art. 15. No restoration work and, above all, no reconstruction work on an historic garden shall be undertaken without thorough prior research to ensure that such work is scientifically executed and which will involve everything from excavation to the assembling of records relating to the garden in question and to similar gardens. Before any practical work starts, a project must be prepared on the basis of said research and must be submitted to a group of experts for joint examination and approval." ICOMOS Charter for the Protection and Management of the Archaeological Heritage, Article 8: "High academic standards in many different disciplines are essential in the management of the archaeological heritage. The training of an adequate number of qualified professionals in the relevant fields of expertise should therefore be an important objective for the educational policies in every country. The need to develop expertise in certain highly specialized fields calls for international cooperation. Standards of professional training and professional conduct should be established and maintained." See also endnote 44.

11 Cf. Venice Charter, Article 16: "In all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs. Every stage of the work of clearing, consolidation, rearrangement and integration, as well as technical and formal features identified during the course of the work, should be included. This record should be placed in the archives of a public institution and made available to research workers. It is recommended that the report should be published."

12 On the concept of metadata and the Dublin Core, see C. Borgman 2000, 69-71.

13 Cf. A. Riegl 1903.

14 A. Riegl m: Jokilehto 1999, 218. Other taxonomies could easily be cited, e.g., Gustavo Giovannoni's four types (consolidation; recomposition [=anastylosis]; liberation; completion or renovation); Giulio Carlo Argan's two types (conservative; artistic). See J. Jokilehto 1999, 222, 224.

15 Cf. C. Brandi 1963, 36: "il restauro deve mirare al ristabilimento della unità potenziale dell'opera d'arte, purchè cio sia possibile senza commettere un falso artistico o un falso storico, e senza cancellare ogni traccia del passaggio dell'opera d'arte nel tempo."

16 See Frischer et al. 2000.

17 This project results from collaboration between the UCLA Cultural VR Lab and the Department of Archaeology at the University of Bologna with assistance from the computing staff and resources at Cineca. Special thanks go out to Prof. Scagliarini of the University of Bologna, Gianna Musatti, the paintings' restorer of the *studiolo* in the House of Augustus, the Archaeological Superintendency of the Forum and Palatine, and the Archaeological Superintendency of Pompeii. *Cubiculum* 16 model was the subject of Philip Stinson's MA Thesis at UCLA 2000 under the supervision of Prof. Diane Favro.

18 Carettoni 1983; Ling 1991, 37-41.

19 Maiuri 1931, 188-91; Ling 1991, 25-27.

20 For different theories regarding the function of *cubiculum* 16, traditionally known as *cubiculum* 16, see Maiuri 1931, 60-1; Richardson 1988, 175.

21 Cf. Lange 1996, 3.

22 Cf. Lange 1996

23 See the useful comments and ideas of Sanders 2000.

24 International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter), 1964, 1965; for a comprehensive discussion of conservation and restoration theory, see Vaccaro, 2000, esp. 189-259.

25 Ryan 1996, 95-6.

26 According to Musatti, significant color variation in the red cinnabar must have existed even in the original wall-paintings.

27 For information about this model, visit www.cvrlab.org. Click on Roman Forum Project. Currently, this part of the website only functions if you are using a PC.

28 Forte and Siliotti 1997.

29 Miller and Richards 1995; Eiteljorg 2001; Cf. Ryan 1996.

30 See the forthcoming Frischer 2002.

31 Multigen relies on a vertice-based input system similar to CAD programs. Dimensions can be inputed precisely, and dimensions of features can be measured vertice to vertice just like CAD.

32 We are reminded of the famous paper given by Mandelbrot about the essence of a coastline. He argued that the length of any coastline is essentially infinitely long, but any answer to the question depends on the length of your ruler. See Gleick 2000, 94-96. In turn, the accuracy of any model is dependent on the effect of observing it at different distances and scales on the computer screen, which is completely idiosyncratic.

33 See Frischer forthcoming.

34 See R. Carlucci 2002.

35 See the useful observations on virtual reality models and archaeological publications

in Sanders 2000.

36 Scagliarini, et al. 2001.

37 Carettoni 1983.

38 Lucet 2000.

39 The wireframe model was created and texture mapped in Multigen Creator, and exported into Lightscape using NuGraf Polytrans software. The radiosity solution and ray traced images were created in Lightscape. For more information about illuminating digital models, see Lucet 2000.

40 For different theories regarding the function of cubiculum 16, traditionally known as cubiculum 16, see Maiuri 1931, 60-1; Richardson 1988, 175.

41 Hueber and Strocka 1975, 3 ff.

42 Schmidt 1997, 46-7.

43 Demas, 1997, 146; Sivan 1997, 51.

44 The texts of the Athens Charter (1931), Venice Charter (1964), Florence Charter (1982), etc. are cited from the versions posted on the ICOMOS Internet site at: http://www.international.icomos.org/charters.htm

COMMUNICATING THE 'VIRTUAL'

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> *'As our age translates itself back into the oral and auditory modes ... we become sharply aware of the uncritical acceptance of visual metaphors and models by many past centuries.'*
> Marshall McLuhan, The Gutenberg Galaxy

Abstract

The revolution of digital technologies has so far focused attention mainly on technical power and not on the semantics of information and communication. In the field of virtual heritage, the risk was and is enhancing aesthetic features despite informative/narrative feedback and cognition within the virtual worlds. How much information can we get from a virtual system? How does it communicate? How can we process this kind of interactive information? The importance of virtual reality systems in the application of cultural heritage should be oriented towards a capacity to change ways and approaches of learning. The virtual system communicates, the user learns and creates new information. Typically we distinguish between linear learning (tools and actions, such as books, audio guides, catalogues and so on in a linear sequence), and reticular learning, such as VR systems where the user is immersed within reticules of information and visual data.

Psychological and cognitive learning in the museum can be interpreted as a communicative flow of information across the museum's territory and the user's territory. The relations between virtual and psychological reactions (action/reaction) are the basis of any cognitive processing: a good impact corresponds to a good memory, a good memory very probably will be a good tale. In a museum exhibition, for instance, in order to interpret an object, we compare old mental 'maps' with our newer 'maps': this mutual interaction can create a new context.

In this presentation we will embrace the philosophy of ecological thinking for virtual reality applications, interpreting virtual worlds as ecosystems.

We will consider the following basic concepts in virtual reality: feedback or retroaction, circularity, redundancy of information, difference, hierarchical levels of information, map, connectivity, metaphors, context, narrative visuality and the aesthetic of the fruition.

Introduction

What the world is most interested in are the digital aspects of virtual reality technology. This direction lacks a correct evaluation of the relations between mind and environment. We imagine the virtual like a 3D cyberspace in which artificial organisms and humans interact, move, grow according to the rules of artificial societies and the relationships between ecosystems. The realm of the virtual, in a technical sense, includes all 3D worlds where action/reaction/retroaction is free and in real time. In particular we are interested in DVR, screen-based and aimed to allow the user to interact with a responsive 'game space'.

In the field of virtual reality the concept and the significance of the virtual is smoothed, undefined, misunderstood, misinterpreted. The big mistake of common sense is to consider the virtual as communicable only through technology. This is not true, as the virtual communicates through information, feedback, inter-relations (Levy 1995). The virtual is essentially an ecosystem, an environment, so its rules are the rules of a system theory. This is why we discuss the importance of an epistemology of the virtual in ecological terms: without environmental interactions there is no information.

Virtualisation is the movement opposite to actualisation, so the virtual is not the opposite of the real but of the actual, it constitutes entities (Levy 1995). The interaction between humans and computers depends on the dialectic of the virtual and of the actual.

An important epistemological cybernetic discussion about the virtual must be started in order to identify the correct means, methods and instances for projecting the virtual, for planning, for communicating the virtual for cultural heritage. The issue is fundamental because the virtual is the 'map of the territory', the map of the reality. The next challenge of the virtual will be the study of relations with the neurosciences. It may be possible to embrace all the questions in a new anthropology of cyberculture.

In terms of epistemology of the virtual there are important relationships between cybernetics, theory of the systems (biology) and cognitive sciences. According to ecological thinking the living being may be understood as a system of relations and not only by the nervous system. The living being is defined as an

autopoietic organisation because it is self-produced, self-organised. VR can be defined as an autopoietic system because it reflects processes of mutual interactions (Maturana and Varela 1980; 1987).

In autopoietic theory, cognition is a consequence of circularity and complexity in the form of a system whose behaviour includes maintenance of that selfsame form. This shifts the focus from discernment of active agencies and replicable actions through which a given process ('cognition') is conducted (the viewpoint of cognitive science) to the discernment of those features of an organism's form which determine its engagement with its milieu.

An ecological approach takes as a starting point the condition of the whole organism-person. These states are called 'descriptions' in autopoietic theory, and an organism operating within the realm of its 'descriptions' is an observer. Relations between organisms and their environment dominate all the knowledge of the real and of the virtual and they constitute the central item of the biological research. According to Maturana and Varela the observer is the system itself: the interactions with the environment are instructive, they are part of the definition of the organisation of the system and they lead to the course of the transformation (Maturana and Varela 1980).

This paper discusses the properties of communication, learning and knowledge of the virtual according to the cybernetic theories and ecological thinking of Bateson's school (Bateson 1972), in relation with cultural heritage fruition and 'consumption'. The study of the process of learning through VR systems and applications is a key point for analysing *in toto* the cognitive processes of the mind and for understanding the exchange and value of information technologies.

This paper uses keywords to address several primary concepts, with the quotations of Bateson in italics.

Cybernetics

The delimitation of an individual mind must always depend upon what phenomena we wish to understand or explain ... The elementary cybernetic system with is messages in circuit is, in fact, the simplest unit of mind; and the transform of a difference traveling in a circuit is the elementary idea ... The unit which shows the characteristic of trial and error will be legitimately called a mental system ... After all, the simplest cybernetic circuit can be said to have memory of a dynamic kind – not based upon static storage but upon the travel of information around the circuit ... We get a picture, then, of mind as synonymous with cybernetic system –

the relevant total information-processing, trial-and-error completing unit. And we know that within Mind in the widest sense there will be a hierarchy of subsystems, any one of which we can call an individual mind. (Bateson 1972) (fig 1

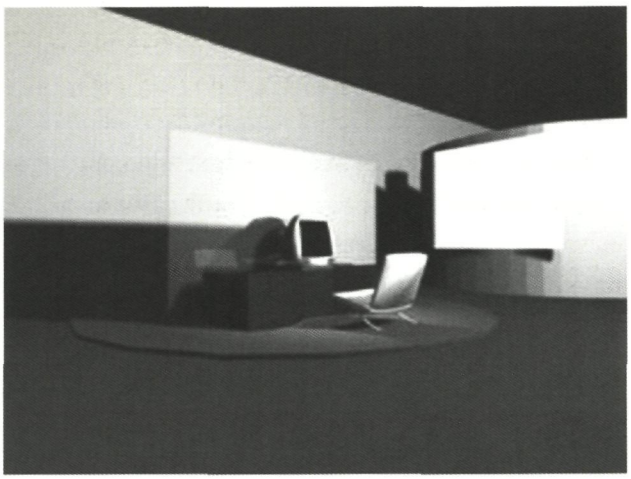

Figure 1: Project of the ipermedia room of the Scrovegni Chapel (Padua).

Map and territory

The map is not the territory. 'The map is not the land' is a principle made famous by Alfred Korzybski (1941), according to which

'*when there is thought or perception or communication of perception there is a transformation, a codification, between what is communicated,* the Ding an sich, *and its communication'.*

According to Bateson the map is *'a sort of effect which sums up the differences, which organises the information about the territory's differences'*. The differentiation, for example, between map and territory, which the semanticists insist that scientists shall respect in their writings must, in cybernetics, be watched for in the very phenomena about which the scientist writes. Communicating organisms and badly programmed computers will mistake map for territory, and the language of the scientist must be able to cope with such anomalies. In the relation between map and territory, presuming the virtual to be the map, and the territory an item (object) of knowledge (archaeological sites or museums),

the transfer of information from the map to the territory and vice versa can be a circular relation of interaction 'map-territory', between coded information and uncoded information. Knowledge and learning of the environment 'map' will produce as an effect a new knowledge of the territory and, in consequence of this, a new knowledge of the territory will produce a newer knowledge of the map. This reversive circularity of the information catalyses different forms of learning.

In the case of museums or cultural exhibitions many problems of bad orientation, misunderstanding, low level of learning depend on the confusion and overlay between map and territory, between context and content. In the realm of the reality 'the map is not the territory', in the realm of virtuality 'the map is the territory'. The museum or the 'musealised areas' are the meta-territories because they 'de-territorialise' cultural finds or objects from the original contexts to create new grammars; so they are not completely territories and not completely maps (they have lost the original maps).

The original statement for which Korzybski is most famous, the statement that the map is not the territory ... What is it in the territory that gets onto the map? We know the territory does not get onto the map ... Now, if the territory were uniform, nothing would get onto the map except its boundaries, which are the points at which it ceases to be uniform against some larger matrix. What gets onto the map, in fact, is difference, be it a difference in altitude, a difference in vegetation, a difference in population structure, difference in surface, or whatever. Difference are the things that get onto the map ... But what the is the territory? Operationally, somebody went out with a retina or a measuring stick and made representations which were then put upon paper. What is on the paper map is a representation of what was in the retinal representation of the man who made the map; and as you push the question back, what you find is an infinite regress, an infinite series of maps. The territory never gets in at all. The territory is Ding an sich and you can't do anything with it. Always the process of representation will filter it out so that the mental world is only maps of maps of maps, ad infinitum. All 'phenomena' are literally 'appearances'. (Fig 2)

Reticular spatial learning

Without learning there could not be transmission of representations between generations, and there would not be culture. This interaction and learning in VR is reticular (information spatially connected within a 3D cyber-net) because the use

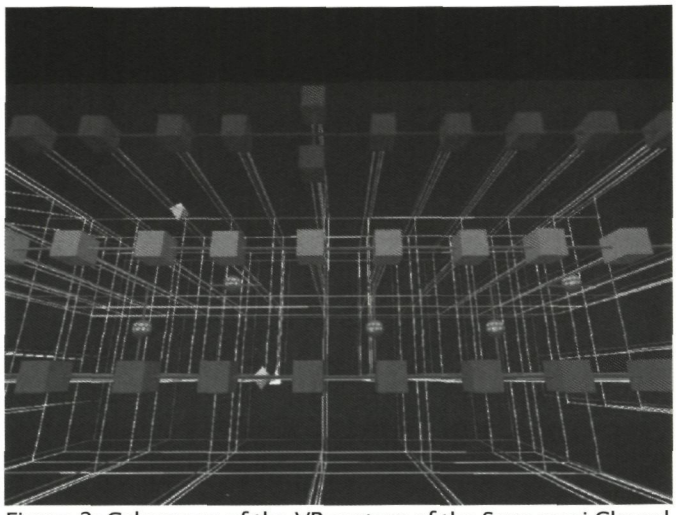

Figure 2: Cybermap of the VR system of the Scrovegni Chapel (Padua).

is immersed within reticules of information and visual data. Each interaction is carried out from its own system of virtual learning; a new 'alphabet' can suggest a different and fast perception of the visual and interactive space; in this way advanced directions of digital learning can be promoted so that the audience can receive in a very short time a relevant quantity of information (Gregory 1972, Bowen Loftin 2002). This mental re-composition is a new map. We have defined this process of digital cultural learning through virtual exhibitions as 'musealising the virtual'. The use of VR tools and applications will increase a reticular cultural learning (despite the traditional 'linear' learning), catalysing new consumption of virtual heritage. The users should learn and acquire much more information in a short time using VR than when using 'linear' tools and actions, such as books, audio guides, catalogues and so on. This interaction and learning in VR is of reticular type (Arnheim 1969) (information spatially connected within a 3D cybernet) because the user is immersed within reticules of information and visual data (Forte et al 2002, Forte et al 2001) (Fig 3).

Behaviours

We define a behaviour as a real-time interaction in the 3D space (3D hot areas, 3D movements and visualisations, 3D simulations, etc.). Each interaction is carried out from its own system of virtual alphabetisation; a new 'alphabet' can suggest a different and fast perception of the visual and interactive space. For example in the

Figure 3: 3D Inclusive interaction within the virtual model of the Scrovegni Chapel.

1990s most virtual reality projects in cultural heritage involved 10-20 behaviours (interactions) for each application, while in our application we have 500 links and behaviours.

The subject matter of cybernetics is not events and objects but the information 'carried' by events and objects. We consider the objects or events only as proposing facts, propositions, messages, precepts, and the like. The subject matter being propositional, it is expectable that explanation would simulate the logical. The hierarchy of contexts within contexts is universal for the communicational (or 'emic') aspect of phenomena and drives the scientist always to seek for explanation in the ever larger units ... Without context there is no communication.

Feedback

Feedback or retroaction is learning and knowing the ecosystem/digital environment through actions, inter-actions and re-actions (answers). Perceptive phenomena provides an interaction level, or an 'exchange' or absence of behaviour between the actor and receiver. In this field we can identify multiple levels of interaction in real time (Forte 2000).

When the phenomena of the universe are seen as linked together by cause-and-

effect and energy transfer, the resulting picture is of complexly branching and interconnecting chains of causation.

Difference

According to the cybernetics of Bateson, the learning is 'through difference', the perception acts only on the difference. Receiving, grabbing information means always and necessarily to receive news of difference, and perception of the difference is always limited from a threshold. Differences too slight or presented too slowly are not perceptible: they don't feed perception. Bateson's theory explains the mechanisms of processing information: data are neutral objects, the knowledge of a spatial system is for interaction (difference) between the components or for the simulation of connected events. The more difference increases in the virtual interaction, the more learning increases.

A difference is an abstract matter. In the hard sciences, effects are, in general, caused by rather concrete conditions or events-impacts, forces, and so forth. But when you enter the world of communication, organisation, etc., you leave behind that whole world in which effects are brought about by forces and impacts and energy exchange. You enter a world in which 'effects' are brought about by differences. That is, they are brought about by the sort of 'thing' that gets onto the map from the territory. This is the difference ... There is for every molecule an infinite number of differences between its location and the locations in which it might have been. Of this infinitude, we select a very limited number, which become information. In fact, what we mean by information, the elementary unit of information, is a difference which makes a difference, and it is able to make a difference because the neural pathways along which it travels and is continually transformed are themselves provided with energy.

Circularity, redundancy of information

Learning, thanks to the alternation of real and virtual phases, develops through redundancy and spatial contextualisation of the information; the user-visitor moves through informative itineraries, adding progressively new learning levels. This digital anakyclosis ends when he is able to identify already acquired information (already seen, already known, already memorised) with the faculty of elaborating it again. Therefore, starting from redundancy it is possible to create a cognitive

cartography, increasing the ability to learn and stabilising the memorising. The virtual reality project is aimed not to substitute the real visit, but to prepare it, to integrate it, to re-contextualise it, giving the visitors new and immersive visual grammars with all the interactions in 3D in real time. The sequence should be circular: before the visit (virtual alphabetisation); during the visit (real alphabetisation); after the visit (virtual re-alphabetisation). The great challenge of the project is to increase and accelerate the cognitive impact of cultural learning.

The relation between real and virtual is circular, even if they are contextually different. Anyone who observes and interacts with an application of virtual reality exchanges information coming from the real environment (physical and intellective) with the virtual environment and vice versa; so a circular environment is created. In the case of the virtual reality project of the Scrovegni Chapel, the topographic position of the monument (the virtual system is located beside of the Chapel) is similar to a picture of the Escher's Print Gallery (Maturana and Varela 1980). A boy looks at the picture which is gradually and imperceptibly transformed in the town where the gallery of the observed picture is located. In a similar way, in Ename, a user can observe the church using a VR display in the archaeological area, which shows the same archaeological area reconstructed (Fig 4).

In this recursive circular sequence it may be difficult to identify the starting point. What is the real? The imaginary-virtual? Ideally we could put the start phase in cognitive reversion, in the point and time in which our mind has processed enough information to involve a comparative-mnemonic and visual analysis between virtual and real environment. In this circular exchange of information and contexts between real-virtual-real again, we have a cognitive increment even if, to complete the simulation, we input an avatar instead of us (the 'observer' according the autopoietic theories of the ecological thought) (Maturana and Varela 1980), in the virtual environment, able to explore and to describe the environment from the inside of the virtual space. In the work of Maturana and Varela the inextricability between action and experience is recognised, so any knowledge is action and any action is knowledge; a perception without action or, better, inter-action does not exist. The human mind makes possible the 'thing' emerging from the description.

The concept of redundancy is usually derived by considering first the maximum of information which might be carried by the given item and then considering how this total might be reduced by knowledge of the surrounding patterns of which

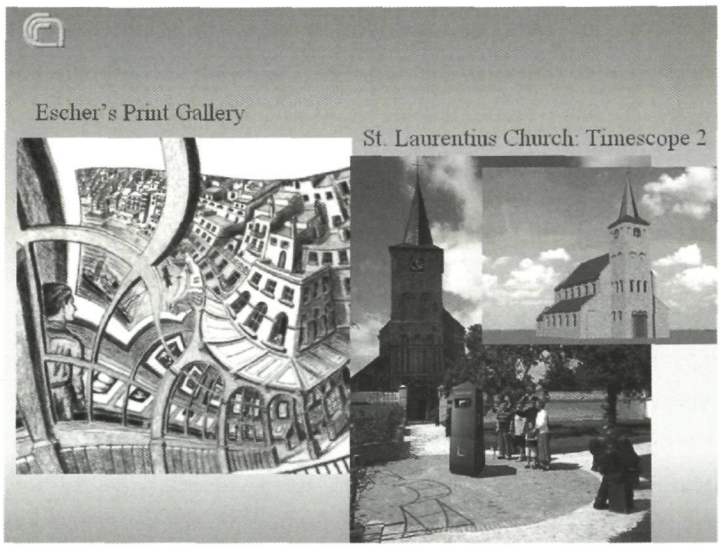

Figure 4: Comparison between Escher's Print Gallery and the display system Timescope 2 (Ename, St.Laurentius Church, Belgium).

the given item is a component part ... To guess, in essence, is to face a cut or slash what item might be on the other side ... A pattern, in fact, is definable as an aggregate of events or objects which will permit in some degree such guesses when the entire aggregate is not available for inspection. The message material is said to contain 'redundancy' if, when the sequence is received with some items missing, the receiver is able to guess at the missing items with better than random success.

Hierarchical levels of information

The hierarchy of contexts within contexts is universal for the communicational aspect of phenomena and drives the scientist always to seek for explanation in the ever larger units... without context, there is no communication.

The hierarchical virtual space must be contextualised and hierarchically restructured in order to identify logical units of information in the models' geometry (Forte 2000). In the general semantics' system, live experience can fall within a number of terms: territory, silent level, non-verbal level, 'facts', 'unnameable level', object-level. Even at a cognitive level, 'seeing' an object means creating an image of it, an inside map which is not the external object. To communicate, we use signs that belong to something else; they are abstractions, 'pretences'. The 'facts',

the 'phenomena', are thus 'appearances', since they are cognitive elaborations that, during communication, are elaborated still further' (Forte 2000).

Perception, visuality and cognition

The way we perceive depends on the way we move, or in the real or in the virtual. We call cognitive all the mental actions (procedures, operations) involved in the processing of receiving, archiving and elaborating information (Arnheim 1969): sensorial perception, memory, thinking, learning. To perceive visually means to think visually, but vision is selective: we scan the target. Then we interpret. Therefore without a selected interest we do not have experience (James 1950). We can consider that an observed object is really perceived when it corresponds to some organised configuration, a pattern (Arnheim 1969). In fact, when we project a virtual reality application, we plan different patterns of information accessible by real-time interaction. In the case of a picture (work of art) an observer starts from a single point or area of the work and he tries to orientate on the main structure of the painting, he searches the enhancements, he experiments with a grid to fit on the whole, and so on.

In considering perception, we shall not say, for example, 'I see a tree', because the tree is not within our explanatory system ... I make the image, under various restraints, some of which are imposed by my neural circuits, while others are imposed by the external tree.

Connectivity

In VR all the information must be interconnected in a 3D space; an ontology of connectivity entails mutual causality: actor and environment modify each other creating new information (Fig 5).

Narrative

The possibility of calculating cultural learning on the basis of a museum visit, for instance, depends mainly on the faculty of telling what we have seen, what we have elaborated, observed. They have left traces, mnemonic traces. The more we have learnt, the more we can tell; but also the objects, the places, the sites, tell. The new challenge in virtual environments is to develop advanced narrative

Figure 5: Ename Museum: a collection of pictures and objects belonging to the local community.

mechanisms. The experience is a very new way of storytelling. As we see the high speed of development in the game industry, the need for new forms of storytelling is apparent. Virtual storytelling will be one of the important progresses in virtual reality. We have to develop interfaces and tools for them that enable them to work on virtual scenarios. These tools should include narrative as well as the technical and creative issues, for example camera tracking, light moods, and so on. Digital heritage exchange scenarios are a relevant opportunity to implement new virtual storytelling concepts to create vivid environments for sharing cultural and ecological content, worldwide, in an attractive way.

Space and place

In cybernetics we could summarize this discussion with these homologies: territory=space (the Real), map=place, map=Virtual. The Virtual becomes the place and in the same time the map. Territory, like space, is a not place, a de-narrative environment, a-temporal. Although spatial metaphors are the prevailing ones to support interaction, it is actually a notion of place that frames interactive behavior. According to Steve Harrison and Paul Dourish, in contrast to space,

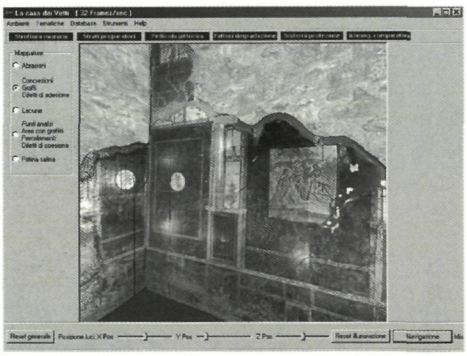

Figure 6: DVR Pompeii Project: virtual representation of spatial layers in 3D.

place is the desired notion, as a set of common and shared cultural understanding about behavior and action; a place is a social space (Harrison and Dourish 1996). In the museum field it is evident that problems of learning, disorientation or confusion between contexts and contents, come from a superimposition of map and territory and from their wrong relations. (Fig 6)

Mindscape (the landscape thought)

This neologism (composed by the words mind and landscape) refers to the process of perception, cognition and interpretation of cultural and archaeological landscapes. We call all the mental actions involved in the processing of receiving, archiving and elaborating information, cognitive (Arnheim 1969): sensorial perception, memory, thinking, learning. A visual perception is a visual thought, but the vision is selective: we scan the target (for example a painting) according to hierarchical levels of information, then we interpret. Therefore without a selected interest we do not have experience (James 1950). We can consider that an observed object is really perceived when it corresponds to some organised configuration, a pattern (Arnheim 1969).

Mixed and tangible realities

The fruition-interaction with virtual environments keep a relevant distance or separation between users and virtual spaces, so in cancelling these distances we

Figure 7: Mindscape. Semi-immersive navigation through the archaeological landscape of Aksum, Ethiopia.

must create hybrid installations, partially physical and partially virtual, where transparent boundaries may be created between the physical and the virtual (Benford et al. 1998). For example, the construction of a transparent physical-synthetic boundary is based on a combination of projecting graphics into the physical space and texturing video into the virtual space (Fig 7).

The Future: Conclusions and Perspectives

In conclusion, re-contextualising these discussions on the title of our conference 'Heritage, New Technologies and Local Development', what does happen when computer and virtual realities impact on popular culture (Escobar 1994), on popular 'global' collective imagination? In the popular environments the technological imaginary increase the development of symbolic contents substantially different from those planned from the scientists. We contend the importance, in VR applications, of the superimposition of art, science and technology: this approach will help us to understand a vision of the cultures of tomorrow: dynamic phenomena, processes rather than static definitions, basic elements in cultural heritage, namely, individuals (Who?), objects (What?), concepts and their relations (What?), space (Where?), time (When?), and narratives (How? Why?).

This will make possible a global interoperability of contents, which reflects adequately the complexities of cultural and historical knowledge (E-culture forthcoming). Virtual realities open doors previously closed (Fig 8). In

Figure 8: Digital metaphor of VR project of the Scrovegni Chapel: the user walks over the sky painted under the floor (on the vault of the crypt).

the near future we expect to project virtual environments using neural networks and artificial intelligence; in that situation avatars and artificial organisms will learn by interacting with the environments and they will be able to interact with us, and describe their environment. These new artificial lives will create artificial societies. These new behaviours will be not completely predictable because they will represent the difference (in the terms described by Bateson) in the activity of learning an environment.

Therefore, in the late modernity, bodies, organisms and communities must be re-theorised because composed by elements born in three different domains with permeable boundaries: the organic, the technical and the textual-cultural (memory) (Escobar 1994). In this way we will have power interactions between humans, nature and machines. An environment can be recognised in relation to its organism; the VR is an ontology by virtue on the relations that are created with the actor/observer of the system. The significance (information) is not the form that the mind imposes through acquired or innate schemes but it is generated in the relational contexts of the surrounding world.

As a political consideration: until today we have created a great deal of digital and virtual heritage. What about all these data, archives, memories and images? Do we have access to all of them? Have we created digital cyber-communities sharing e-cultures ? Unfortunately not; most of this digital heritage is not shared, is not visible and not interactive. In terms of political directions, I think we should add a new item to the general discussion of the Ename Charter, the creation of a newer field of CRM (cultural resource management), named DCRM, the Digital Culture Resource Management, a shared virtual heritage of increased cyber-information. The increment of DVR applications of digital heritage will bring new needs, new fruition (museums, musealised areas, archaeological sites) and new cultural consumption thanks to a re-contextualised transfer of information/ interactions. It is also very important to stress that the portability and the migration of VR applications on PCs and personal workstations (low-cost platforms) open new scenarios on the domestic high level fruition of digital cultural heritage in real-time systems.

The cultural and economical development of the 'Glocal' communities, in terms of heritage, depends also on their relations with virtual spaces and mnemonic landscapes. In this context the anthropology of cyberspace explores territories of the reality, crosses virtual maps of the future. Again, the map is not the territory.

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INTERPRETATION AND RESPECT OF INTANGIBLE VALUES

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The Cultural Tourism Committee, ICOMOS UK

In 1977 a survey was undertaken by the British Tourist Board concerning visitors and their care in the cathedrals of England. As a result of this, a report entitled *English Cathedrals and Tourism – Problems and Opportunities* was published in 1979. This critical report was to become the yardstick for the development of visitor care and educational work in cathedrals in the United Kingdom for the next twenty years.

In 2000 a new and more extensive survey was initiated by the Cultural Tourism Committee of ICOMOS UK. Its report was published under the title *To Be a Pilgrim*. For this project, the net was spread wider to include the whole of the UK, not just England, and also to cover large churches and religious houses, some non-Christian, other than cathedrals.

A comparison of the two reports gives a measure of the considerable progress made over those years in all aspects of visitor care. I will not detail these improvements here, but among them were facilities and techniques in informing and interpreting that which people had come to see, outstanding in their development and improvement. Not least was the work among children, which for the most part where provision is made, is now largely linked to the English National Curriculum. A new awareness had also become evident. That was the attraction of the difference and uniqueness which lies in the experience of visiting a great religious site. This is something which is to be found in its special atmosphere and character.

As I thought more about this latter point, I became convinced that atmosphere and feeling are, in fact, aspects of all sites of historic interest. Furthermore, they are something that all of us who have the care of such sites should be a aware of in our attempts at interpretation. They have to do with what I like to describe as the spirit of the place.

Our responsibility towards our visitors is something laid on us by the simple fact that these places are common property, and belong to them. They are

so because they are of the warp and woof of the universal culture of humankind. It happens that some of us have the special privilege of working in them, and caring for them. We are also required to make them accessible and understandable to as many people as possible. Taking for granted all the practical aspects of visitor management which are the stock-in-trade of a good tourist site, the normal things that are provided to help visitors and make their experience as comfortable as possible, we are left with two main things to do. The first is to describe to the visitor what he or she is seeing, and the other is to clothe what is seen with meaning. I find that it is helpful to make a distinction between these two things as information and interpretation.

Information is basically a straightforward practical matter and for its effectiveness depends on well-presented communication devices. Among these are, of course, the written publications and human guides, as well as signs and notices, and the other paraphernalia of directional aids and leaflets. As we set about supplying information, we are largely concerned with description and observation, appealing to the eye of the beholder. To get that right we need to understand the nature and character of our visitors, their needs, interests and concerns, so as to provide the best and most helpful information. If we don't do some feasibility work on the expectations of our people, then we will spend a lot of time and effort telling them a good deal that they neither need nor want to know, and leave out what for them are essentials! As far as possible we must know the market.

Interpretation is something rather different. It is concerned with meaning and understanding. This is something that we should try to draw people into as an engaging and captivating experience. Audio-visual presentations, of varying degrees of sophistication, are now well established. Computer-generated graphics and virtual reality experiences are making interpretation much more exciting and attractive. Centuries of architectural changes can be reconstructed before us in a moment. We can be taken into a structure and have it explained without moving away from our screens. This is obviously something that requires expertise of a special technological kind, both in its preparation and in its use.

However, let us not forget the time-honoured and irreplaceable role of the well-informed person. This, at best, is someone who has a real love and ongoing relationship with the place and its life. Such a person can capture the imagination of a visitor in a proven, very special way. They rarely come ready-made and careful training of such people is extremely important.

It is in the process of interpretation that 'intangible values' can be drawn out and expressed. Once exposed, these values can be identified, then defined,

and finally imbued with respect. Such intangible values are sometimes associated with the historic setting, often with the social history, and more often still with the quality and character of people who have contributed to its community life over the centuries. Authentic stories and explained meanings catch the imagination, and draw others into the soul of the place. When that happens, people begin to respond with something from within themselves. Most gratifying of all is when one sees in the audience the beginnings of a relationship with what they are experiencing.

A cathedral is a good example of the challenge to expose intangible values by way of good interpretation. I remain constantly impressed by so many who come to visit a cathedral with no other intention than casually to 'have a look round', and yet find themselves caught up in another kind of experience which they are hard put to define. Involuntarily, they find themselves responding to something else about it all. This is what I feel is the spirit. It is a moment of resonance between the human spirit and the spirit of the place.

As I have already said, this is not only confined to cathedrals and religious places. All sites have the same potential. A secular example might be a country house visitor who finds his or her imagination fired with what has gone on there in the past, the kind of people who were the family, and their relationships; the daily life of the servants, and the work they did, etc. They will have been given, doubtless, all kinds of helpful and interesting information about the house, and it might have been well interpreted in terms of its daily life and management; but there remain other fascinations. For example, the stamp of a personality left on a room by the kind of pictures and photographs and artefacts left about. Imagination is called into play, and a sensitive and intimate explanation by a guide will release new dimensions of experience for the visitor.

Better still will this come about if a good preparatory visual presentation has already alerted people to this aspect of what they are about to see. We should not forget, either, the post-visit time which is when many people like to read up things in more detail in publications, or enjoy videos at their leisure. In these ways experiences are renewed and prolonged. Publications will be greatly enhanced if they seek to capture the spirit of the place along with all the other things we want to say about it.

A great cathedral has a powerful atmosphere. There lies behind what is seen as a masterpiece of human achievement, deeper things to do with human vision and the inspiration of a faith. This is true of religious buildings of all kinds, of course, not only Christian. A Buddhist temple or a mosque can evoke the same feelings. The same can be said of ruins or open spaces. Many of these 'feelings' are

best left unexplained and allowed just to happen. We must guard against getting in the way with our own agendas. Mystery is a great experience in itself and for its own sake. To explain is sometimes to destroy.

The example of lighting a candle in a cathedral is that of enabling a tangible answer to be given to a response to something intangible. Leaving a written prayer goes perhaps a little further and gives form to a trust in something deposited in the place. Here, sensitivity is needed, so as to respect what rises from the human spirit for what it is, and not for what we want to make it. There is always the danger of wanting to impose some shape on an experience that a person is not ready to adopt. Crude attempts at evangelism in working religious sites are not only counter-productive, they are insulting to the human dignity of our visitors. This is not to say that we should be in any way embarrassed about what the contemporary purpose of the place is. So, at Canterbury, our card, available where the candle is lit, and which can be taken away as a reminder, simply states:

I LIT A CANDLE IN CANTERBURY CATHEDRAL
I didn't know how to pray
I didn't know what to say
I didn't have much time

THE LIGHT I offered was
a little of what I have
a little of my time
a little of myself
and, if the person wishes, he or she can go on to say,

I left it before the Lord
before the Blessed Virgin
and the whole company of heaven

THE FLAME stood for my prayer which is always with me.

So, here are some principles which might be applied if we take seriously the spirit of a place:

- Make facilities for feelings to occur.

- Promote responding to those feelings.

- Make tangible provisions for responses to be expressed.
- Recognise that some will want the satisfaction of a relationship.
- Make sure that what is taken away in leaflets, publications etc prolongs the experience in a good memory.

I believe that an experience in any site that takes into account these principles will be a deepened and enhanced experience that will have some lasting value.

Of course, a building need not necessarily have survived in order to have this effect. A ruin, or even only a space no longer occupied by anything other than its memory, can make the same kind of impact of in its atmosphere, perhaps, in some cases, more so.

Always, however, we must take care that what is told or re-enacted has been subjected to rigorous assessment to ensure its integrity. Romanticising is deceit. A lie, however well-meaning, is a betrayal.

We have all suffered from over-egged, ill-informed and ham-fisted attempts at interpretation of places, usually in the hands of well-meaning, ill-trained amateurs. Of all our responsibilities, that of interpretation demands the highest standards of knowledge, and communication skills. This is because good interpretation requires profound understanding. That understanding comes of more than intellectual knowledge alone. It must be coupled with what I would call a genuine love of the place. We are irresponsible if we tolerate guides and publications that are not of the highest standard.

At Canterbury, we have looked after visitors for 800 years. In recent times we have improved things so as to bring our facilities into line with modern expectations. Now we are making a new advance. An International Study Centre was completed in January 2002, to be a place where the depths of the meaning of the cathedral can be explored in broader and more comprehensive ways. The Centre can be used by anyone who wants to hold a residential conference, or a day seminar, or an evening's lecture on any serious subject. It is also available for secular use, when the looming presence of the Cathedral, and the collegiate nature of the structure, have their own effect. It is an inclusive place which can be used for teaching, for active thinking and debate, as well as for reflection and refreshment.

Cathedrals have their time-honoured ways of enabling people to respond

to them. There is always the focus of attention on the holy places within them, such as the place of the martyrdom of Thomas at Canterbury and the site of his shrine. In lighting candles hopes, anxieties and joys are released. Concerns can be written down and placed in greater perspectives, as well as, for many, addressing them to higher power. The drama of worship, well ordered and disciplined in the setting of glorious music, is for many people a manifestation of some of the dimensions of their feelings. It is also something 'given' without hooks, to which they can freely respond.

In his message for World Tourism Day 2001, Pope John Paul II said:

There is no doubt that, when properly orientated, tourism becomes an opportunity for dialogue between civilisations and cultures, and a valuable service to peace.

If we take that ideal on board, it raises the sights for those of us who are concerned to enhance people's understanding of our places. International tourism is growing year by year and within that growth cultural tourism becomes more popular. That our sites could be vehicles of international understandings is an important factor to take into account as we explore the spirit that each most certainly has.

Our heritage, wherever it is, belongs to all humanity and its appeal is universal. The designation of 'World Heritage Sites' has given this concept a new impetus. We cannot underestimate the formative influence of our understanding of history as it is manifest in our wonderful historic structures and remains; and we certainly must not neglect our feelings for their spirit: their intangible values.

Our heritage is our cultural treasure. It was made by people and it belongs to all people. Their feelings about it are as important as their knowledge.

WORKSHOP 2: PLANNING, FUNDING AND MANAGEMENT

INTEGRATED MANAGEMENT OF ARCHAEOLOGICAL SITES: A CASE STUDY FROM EL SALVADOR

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Introduction

The management plan for the Joya de Cerén *site* in El Salvador illustrates the identification, definition and organisation of the activities at and around this archaeological site. The plan was the result of an interdisciplinary and participatory process aimed at coordinating all interventions, directly or indirectly related to the site, initiated by institutions or individuals. It was based on the recognition of the significance of the site and on the commitment of the stakeholder in the conservation of the site and its values. The plan was also an integrated response to address the needs of the site and its contexts, and to provide a sustainable response and a better use of resources.

Obviously, because of their specific characteristics and context, each site requires a specific answer. This is why this presentation focuses on the planning process and the articulation of the plan rather than on the specific results of the work undertaken.

The Maya Initiative

The preparation of the management plan for the Joya de Cerén site was part of a wider project, The Maya Initiative, developed by the Getty Conservation Institute and the institutions with responsibility for heritage in the Mesoamerican countries.

Since 1999, the Getty Conservation Institute (GCI) and *the Consejo Nacional para la Cultura y el Arte de El Salvador* (CONCULTURA) have collaborated in a project framed into the Maya Initiative. This initiative began

in 1998, when representatives of the Mayan area agreed to collaborate, with the support of the GCI, on developing conservation projects in the region. The overall project aims to develop and promote methodologies for sustainable and integrated approaches to the conservation of cultural heritage. In El Salvador the proposed activity was the application of a interdisciplinary and participative management planning process based on the values and significance of the Joya de Cerén site. The project was realised in close collaboration with CONCULTURA, and is a response to the important commitment of the national authorities to world heritage in managing the site. The project is also a response to the interest of both institutions in supporting the development of policies for the preservation of cultural heritage in El Salvador and to promote similar practices at other archeological sites.

The Site of Joya De Cerén

Joya de Cerén is an earthen architecture village from the classic Maya period, located in El Salvador, Central America. In the sixth century after a probable 200 years of occupation, the site was buried under more than seven to eight metres of ash from the eruption of the nearby volcano Loma Caldera. The site was accidentally discovered in 1979 when a bulldozer cleared the ash layers while constructing agricultural facilities. Partially excavated from 1989 to 1996, the site has revealed exceptionally well-preserved architectural remains as well as numerous domestic and ritual ceramics that provide unique information on daily life of the time. Because of its importance and its unique character, the site was listed as a UNESCO World Heritage site in 1993.

Today, the site is divided into two areas. The area cleared by the bulldozer has been adapted into a park. The areas accessible to the public include a small site museum presenting the history of the site and its excavation; a replica of one of the earthen structures; the remaining foundations of the silos and agricultural facilities; a path climbing alongside the excavated pits; a small shelter for visitors and an open thatched area for souvenir sales. In the archaeological area where the ash was only partially removed stand the four excavated pits, now protected by steel roofs, two spaces for storage and the remains of the *huerta*, the house garden of the previous owner of the land, still maintained by the workers at the site.

The designated site covers five hectares and is located within a densely populated industrial and agricultural area. The extent of the archeological village is not well understood. Further anomalies, indicating possible other structures, have been detected by geophysical studies. It is also probable that other structures were

destroyed before the significance of the now preserved remains was realised.

Ten structures are exposed at present in four excavated areas that include numerous other features such as working floors, garden, drains, ceramics and traces of vegetation. Four main types of structure are represented: dwelling, storage, kitchen and public ceremonial. A main *plaza* and other structures have also been detected in the existing excavated area. All structures are built of earth or of a combination of wooden frames and earth: *bahareque*. Their construction is modest and their architecture consists of a one- or two-room space delimited by four walls, preceded by a covered open space and located on a platform made from the same material.

The structures are in different conditions. Some were partially destroyed by volcanic activities and have also suffered from the drastic change in their environmental conditions due to excavation. Today the earthen structures and agricultural fields are at risk from various threats from natural agents or human behaviour. The site is located in a highly seismic region and the hot and humid tropical climate generates environmental conditions that impact directly and indirectly on the site. An example of these is rising damp from the influence of the variation in the water table and the fluctuation of the nearby river's water levels. These wet and dry cycles damage the structures and test their limits of material resistance.

Environmental conditions can result from human factors and questionable interventions based on empirical methods. To address these issues along with the preparation of the management plan detailed research studies were developed to better understand the conditions of the earthen architecture and their causes of decay, and to propose solutions for their mitigation (Figs 1, 2 and 3).

But the site is also facing other threats. Its inscription on the World Heritage list has brought a particular human attention to the place. Visitors, searching for a 'bigger' experience, want closer access to the site. Individuals or groups from the tourism industry want to take advantage of the potential economic resources the site could offer while the academic world argues for more excavations to increase their knowledge. All these legitimate expectations threaten the conservation of the site and the preservation of its values.

In order to address these issues in an integrated manner it was important to consider not only the site in all its components but also its natural and human context in all the phases of the planning process, in documentation, assessment or in the establishment of the response (Figs 4 and 5).

Figure 1: Structure 2 during excavation (P. Sheet).

Figure 2: Structure 2 after excavation (P. Sheet).

Figure 3: Agricultural fields (P. Sheet).

The Process

Following accepted planning methods, the project was developed in phases of documentation, assessment and synthesis, establishment of the proposal and definition of actions. The plan also considered instruments for administration, monitoring and evaluation. All collected data was reported in summaries, protocols and, when appropriate, mapped in a format compatible with other planning tools developed in El Salvador. The collection and organisation of data under the plan's management was always considered to constitute a core of knowledge and documentation for the site, to be added to and complemented in the future. The mapping of the site and its surroundings represents a system yet to be completed that would allow a better picture of the site: from the broader picture of the valley or from the perception of architectural detail.

In case of Joya de Cerén the process was based on the premise of the conservation of the site and of its significance, which means the recognition of the values of the site. Why is the site important? For whom and why is it important to preserve it? What are the values to be recognised? Are there historic, scientific, economic, social or aesthetic values to be considered? Are there other values? Who is the visitor, the person in charge or the professional involved? What shuld be the balance of the values to be addressed?

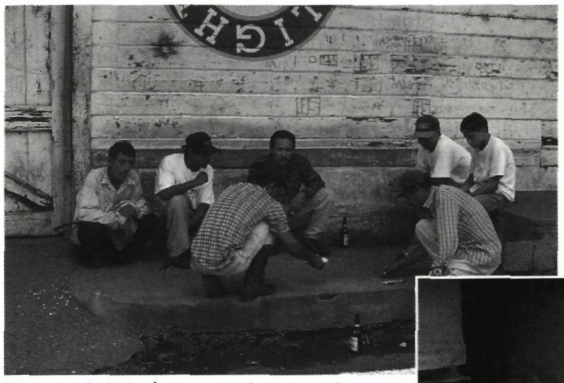

Figure 4: Workers resting on site. (R. Ross, Getty Conservation Institute).

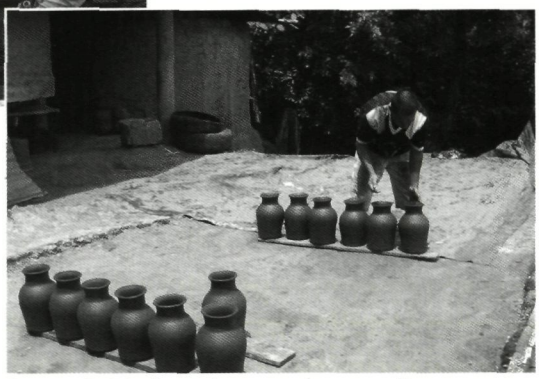

Figure 5: Modern-day pottery manufacture (R. Ross, Getty Conservation Institute).

Detailed documentation of the site and its context was first undertaken to define the place, identify its conditions and to evaluate the threats with which it was confronted. This material was collected in close collaboration with the users and related groups, and permitted the establishment of the site's values. The perspective of each type of visitor, site worker, educator, etc, as an individual, a professional or representative of an institution, in how they envisioned the site in the short, medium and long terms, was also documented.

Interest in the site is numerous, ranging from academic research to the most common perspective of mass tourism development, and including the individual's search for a better income. But disinterest is also an obvious threat, considering the urge for the country to develop industries and industrial agriculture, or another intensive land-use to improve its economy and the well-being of its inhabitants. Generally, misinterpretation, indifference or active disapproval on the part of stakeholders can be attributed to lack of knowledge or information. The lack of appropriate information about the site, the fragile conditions of the structure and the vulnerability of the remains has led to an ignorance of prospects for a more intensive and expanded use of the site. It also led to misrepresentation of the benefits that the preservation of cultural and natural heritage can bring to society.

The misunderstanding or disregard of the expectations of local communities as well as from any other individual or organisation compromises Joya de Cerén and its significance. For that reason the proposed methodology of the management plan considered it necessary to interact with all government institutions, at national and local level, as well as with professionals, NGOs , individuals, etc, to better understand their expectations and establish the dialogue that would provide the dynamic for the management of the site.

From the preliminary stages of the plan, close interaction was established with workers and visitors at the site and local communities in order to build a foundation on which a realistic assessment of the site's conditions and its context could be begun, as well as an evaluation of the priorities. Particular attention was paid to establishing links with programmes in education, tourism, land-use and housing development. All through the preparation of the plan, opportunities were taken to integrate site planning with these related planning programmes. In a similar way, a search was carried out to identify and evaluate any planned or active work that would impact on the site. A closer approach also permitted fostering the site management's formal and informal relationship with the Municipality of San Juan Opico, in which the site is located.

This assessment phase was concluded with a meeting of all interested groups. Without doubt, those two days of conference with more than 150 participants were special moments of sharing and debate on the site and its values. Debates focused on the perception of the site: why is this site or heritage important from an individual, professional point of view as well as from the point of view of a representative of a group, an institution, a field? Six selected topics emerging from the preliminary analysis of the collected data were also discussed in relation to their impact for the future of the site: archeological investigation and conservation of the site, land-use development, tourism development, education, legislation, infrastructure and equipment.

The outcomes of the meeting were multiple. First, an agreement was reached among the different groups about the importance of the site in its various perspectives. Awareness was raised about the vulnerability of the archeological vestiges. It was also recognised that the site was an integral part of the human and physical landscape, and that the potential direct or indirect impact of any intervention at the periphery of the site needed to be acknowledged. In a similar way the benefits that the conservation of the place could bring were also acknowledged, not only economically but also in a general improvement of the quality of life for surrounding communities. Other important information was also

shared about the expectations each individual or group had for the site, which opened new perspectives for the site's interpretation, and allowed the orientation and framing of actions following the principle of sustainability.

An even more important result of these collaborative discussions was raising the awareness that each individual, from the private or public sector was, as part of the community, responsible for the conservation of the site. Also, it was acknowledged that heritage, natural or cultural, should be supported for development, and, in the case of Joya de Cerén, this was a cause of pride for the Salvadorian people. This gathering was the first step to foster the participation of the whole community in a collaborative effort for the future of the site by establishing strategic alliances.

The final outcomes permitted defining a statement on the site concerning its policies and the proposed 'vision' for the site in the short, medium and long term. The most relevant concepts for the proposal for the site were:

- the sense of continuity and identity that related this Salvadorian community with this particular heritage
- the importance given to cultural heritage as a support for development
- the need for a presentation of the site that fostered interpretation of the values and symbols of the site in direct relation with the vivid tradition of its surroundings
- an enjoyable experience for visitors, based on scientific information, using all the facilities the site could offer
- potential experiences from the site's history presented to give visitors and local residents a better understanding of the place
- the spatial and historical perceived in a relationship with natural, archaeological and historical aspects, and with the common daily life of the inhabitants of the area.

The Plan

The plan had to be an appropriate tool to serve all these intentions. Its purpose

was to:

- integrate all future site activities which had the aim of conserving the site and its significance

- build a structured framework to reconcile interests, to address needs following established priorities and to evaluate new needs as well as to optimise human and material resources

- build and promote alliances and collaboration among government bodies and society to undertake the implementation of the plan

- consolidate consciousness of the potential impact of projects in the area.

The plan resulted in a strategy to address, in an integrated and sustainable manner, the conditions of the site and its contexts and ensure the conservation of the significance of the place as agreed at the multisectorial meeting. All activities or projects related to the site were organised in four integrated programmes that addressed the requirement for further knowledge in the fields of archaeology and conservation, preventive and proactive conservation of the material remains, improvement of the visitor experience and enhancement of the local communities' quality of life around the site. Each project was formulated for its specific background and purpose and included budget, pre-requisites and timescale.

The four interrelated programmes have been defined as:

- the investigation research programme
- the conservation programme
- the landscape programme
- the human development programmes.

These programmes form the core of the plan for the site. Each one with its specific objectives contributes towards the overall goal for the integrated use and conservation of the site to the benefit of the surrounding communities, the Salvadorian nation and the international community (Figs 6 and 7).

The investigation programme addresses all the needs to further complete and review the knowledge and interpretation of Joya de Cerén, to address the delimitation of the site, and its protection. But it also considers the research still needed in its archaeology, its conservation and the reconstruction of the cultural

Programs and projects

	Programa		Subprograma		Proyecto
2	Conservación	2.1	Estructuras arqueológicas	2.1.1	Intervenciones en las estructuras
				2.1.2	Acciones de mantenimiento
				2.1.3	Sistemas de cubiertas de protección y control de agua
				2.1.4	Monitoreo de condiciones
		2.2	Bienes muebles	2.2.1	Acciones inmediatas para bienes muebles in situ
				2.2.2	Conservación de bienes muebles
		2.3	Prevención	2.3.1	Estabilización de pozos y taludes
				2.3.2	Mitigación y prevención de desastres
				2.3.3	Mantenimiento del Museo de Sitio
				2.3.4	Mantenimiento del Parque Arqueológico
3	Paisaje	3.1	Paisaje del sitio	3.1.1	Mejoras inmediatas de preservación, protección y presentación
				3.1.2	Presentación del sitio
				3.1.3	Centro de investigación
		3.2	*Paisaje entorno inmediato*	3.2.1	*Recorrido Joya de Cerén - San Andrés*
				3.2.2	Recorrido Joya de Cerén - Laguna Caldera
				3.2.3	Desarrollo territorial - zona de amortiguamiento
		3.3	Medio ambiente	3.3.1	Seguimiento al Plan de Desarrollo Territorial del Valle de San Andrés
				3.3.2	Conservación del bosque de la Laguna Caldera
				3.3.3	Recuperación del Río Sucio
				3.3.4	Conservación y recuperación del bosque de galería del Río Sucio
				3.3.5	Manejo de vida silvestre del Complejo El Playón
				3.3.6	Recuperación de las áreas naturales del Complejo El Playón

Figure 6: Programmes and projects 1 and 2.

Programs and projects

	Programa		Subprograma		Proyecto
1	Investigación	1.1	Arqueología	1.1.1	Concepto de sitio: Conjunto cívico
				1.1.2	Concepto de sitio: Unidades domésticas
				1.1.3	Concepto de sitio: Sectores agrícolas
				1.1.4	Arquitectura y paisaje en la época prehispánica
				1.1.5	Límites: Prospección geofísica
				1.1.6	Límites: Tefra
				1.1.7	Límites: Sondeo Arqueológico
				1.1.8	Límites: Flujo de lodo
				1.1.9	Arqueología de rescate en el entorno inmediato
				1.1.10	Ceramoteca
				1.1.11	Cronología del sitio arqueológico Joya de Cerén
				1.1.12	Estudio de artefactos y materiales arqueológicos
				1.1.13	Interpretación cosmogónica
		1.2	Conservación	1.2.1	Suelos, estabilización de taludes e hidrología en el sitio arqueológico
				1.2.2	Botánica
				1.2.3	Capacidad de carga en sitio y zona de impacto
				1.2.4	*Re enterramiento*
		1.3	Paisaje cultural	1.3.1	Estudio antropológico de las comunidades aledañas a Joya de Cerén
				1.3.2	Identificación y diagnóstico de bienes de interés cultural en la zona
				1.3.3	Transformación del paisaje
				1.3.4	Cuenca y curso original del Río Sucio
				1.3.5	Vulcanología

Figure 7: Programmes and projects 1 and 2.

landscape.

The conservation programme makes recommendations for actions related to the conservation of physical remains on the site, maintenance and conservation measures at the site and also in storage.

The landscape programme is structured in three levels: the site, its surroundings or buffer zone and the natural environment. At the site, the project has plans for the improvement of the presentation area, the park, promoting an interactive area for interpretation of the site as well as more adequate infrastructure for visitors and site management, a centre for investigation as a facility for researchers but also as a point of interest for visitors. The improvement of the archaeological area will relate to the results of conservation studies into the risks which threaten the architectural remains, and the need to improve the protective system while still giving opportunities to the visitors. Considered as an immediate improvement in the preservation of Joya de Cerén as well as in its presentation, functioning in the immediate surroundings of the site offers a two-fold advantage. On the one hand it would offer an improvement for the site's landscaping with traditional agricultural practices, which would also enhance the interpretation of the site. The visitor experience would be widened by the site's location also offering alternatives areas of interest: the nearby volcano or the monuments of San Andres, another archeological site, within walking distance. This aspect of the project directly relates to the human development of the communities around the site.

The third part of the landscape project is closely linked to projects related to the recovery of the natural landscape promoted by other Salvadorian institutions. Considering these projects as an asset and a support for the protection of the site.

The Human Development Programme

The support and commitment of the community for the conservation of the site is a fundamental component of the success of the conservation plan, at local and national level. Through the project it was proposed to integrate local development as part of the planning for the site. It was as important to encourage a better understanding of the site's values as integrating them in the curricula of training programmes or in helping the community to a better understanding of the link between conservation of heritage and local development.

Although the projects are organised in four different programmes, they are interrelated and their implementation was structured to respect the priorities

and resources identified in the assessment phase. The projects are also connected geographically, and, depending on their location, responsibilities will be taken on by the corresponding bodies. Strategies and mechanism have been built in the plan to ease the implementation of these projects. Three areas of actions have been defined: the archaeological area; the buffer zone, defined as a protection zone for Joya de Cerén's as yet undiscovered archaeological resources; and the larger municipal or national level needed for heritage preservation support.

While being designed for the next 15 years, the plan should still be dynamic and a progressive process. Conditions will be reassessed while progress is made, and following the development of new conditions.

At this stage, to emphasise the benefit for the larger, municipal or national level of action, the site will be presented and interpreted through the landscape of the surrounding area. This is based on the need to show how a response to the site can benefit the community and local communities around the site. Other forms of presentation will complement this approach in the future. The future presentation of the site does not exclude further investigation, and it will be possible to ensure the conservation of the newly exposed remains. But improvement is not limited to the physical remains, and the Salvadorian and the international community will benefit from the better understanding of the past by the measured and planned approach to this site.

Conclusion

The Joya de Cerén management plan is a strategy to respond to the particular conditions of the site. Nevertheless, the improvement of conditions at the site, for the conservation of the archaeological remains or the experience offered to visitors, could not have been considered independently from consideration of the human and natural environment.

Clear objectives could not have been established and agreed without establishing a precise and detailed definition of the values. It was also crucial to engage all stakeholders in the process. One of the most important tasks will be to ensure the fundamental goal of conserving the site's significance permanently. This is why the implementation of the plan must remain a dynamic, interdisciplinary and participatory process, and an instrument to manage change.

Acknowledgement

The preparation of the plan and the application of the process would not have been possible without the close collaboration of our colleagues from the *Consejo Nacional para la Cultura y la Arte* (CONCULTURA) nor without the contribution of all individuals, professionals and representatives of several institutions involved in projects related to the place. The plan is a collaborative effort and I would like to thank my colleague Carolina Castellanos who, as a consultant of the Getty Conservation Institute, has contributed to the success of the project as well as our partner Maria Isaura Arauz, *Directora Nacional de Patrimonio Historico*, for the dedication she has given to this major undertaking.

I also would like to acknowledge all the colleagues of the Getty Conservation Institute that have been involved in the project, as well as the archaeologist of the site, P. Sheet.

THE IMPORTANCE OF ARCHAEOLOGICAL INTERPRETATION AND OF MULTIPLE POINTS OF VIEW

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Introduction

This article focuses on some aspects of public presentation covered by the draft document; the Ename Charter was presented for the first time during this conference. (For the original draft of the Ename Charter and its subsequent version, see p. 227) In addition, the article considers issues related to regional differences in interpretation. Such differences sometimes are simply a factor of geography. Interpretations of the Roman empire at museums and sites near Rome understandably present a different perspective and stress different aspects of the empire than sites along the former border of the empire in Flanders or in northern England. Different interpretations also sometimes result from varying perspectives about the outcomes of historical events. In the United States, interpretations of our Civil War may vary depending on whether an interpretive display or site is in the north or the south of the country. Usually there is more than one single interpretation or perspective on important events and historical processes. One key to good interpretation is to recognise the differences and provide for interpretations that can take all of them into account, even if one or another is the focus of an interpretive programme.

One of the challenges of interpretation is to distinguish from the range of possible themes describing events and explanations those that are supported by strong evidence and careful analysis. In the United States, as well as elsewhere, increased attention is being given to the perspectives of different ethnic communities, including those, like traditional Native Americans, whose perspectives about the ancient and historical past is based upon different kinds of evidence and knowledge than that produced by historical research or scientific

archeological study. Providing interpretations based upon traditional knowledge in concert with interpretations based on conventional historic and scientific research is recognised as a legitimate goal by many.

Interpretation in The United States National Park Service (NPS)

The NPS expends considerable time and energy in public interpretive displays and programmes at the archeological, historic and natural parks and sites that it operates, of which there are more than 380. The first national park, Yellowstone, in north-western Wyoming, was designated in 1872. The first archeological sites set aside for protection and public enjoyment were the Casa Grande Ruins in Arizona (1892) and the Mesa Verde National Park in Colorado in 1906. Government programmes to conserve the archeological, historical and natural resources in these early NPS units began soon after their designation. As increasing numbers of local residents and tourists from afar came to the parks and sites, public interpretation programmes also developed.

In 1916 the United States government created a special bureau, the National Park Service, to manage these specially designated places and resources. The law establishing the NPS assigned the agency a conservation function, but also required that the American public be allowed to enjoy the resources through nondestructive interpretation and recreation. The statutory text is quite clear on this point:

...[The NPS] shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations...[so as to] conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations. (16 United States Code, Section 1)

National Park units include grand and stunningly scenic areas of substantial natural resources, such as Yellowstone, the Grand Canyon, Mount Rainer, the Great Smoky Mountains and Cape Cod, which also contain, but are not widely known for, substantial numbers of archeological and historic sites. In fact, most NPS units are also archeological and historic sites, commemorating achievements, events, individuals and historic eras from the earliest habitation of North America by humans to the United States' very recent history in historic sites

devoted to Dr Martin Luther King Jr and former Presidents Dwight Eisenhower, John Fitzgerald Kennedy, Jimmy Carter and Ronald Reagan. The coverage of NPS units also has expanded beyond major political and military individuals and events to include sites representative of aspects of US history, for example, the Women's Rights National Historical Site, the Rosie the Riveter National Historical Site (commemorating the domestic efforts during World II), and the Manzanzar National Historic Site (one of the internment sites for Japanese-Americans during the Second World War). Based upon historical and scientific scholarship, the NPS has a thematic framework for American ancient and modern history that organises the representations of NPS units and is used to determine how fully NPS units cover issues and topics in American history (National Park Service 1994).

Parks are special places saved and maintained by the American people so that all may experience our heritage. The United States funds the NPS with an annual budget of around $2.1 billion. A permanent staff of 16,000 carry out the range of activities and programmes, supplemented by 6,000 temporary staff, often employed seasonally during peak visiting times. Among the professional work force are hundreds of archaeologists, historians, historical architects and museum curators. The NPS records about 436 million visits annually of which 287 million are 'recreational', that is visitors who did more than simply drive through a park, but in some way used a park facility or resource.

Planning, Funding and Management: Examples from Jamestown, Virginia and other United States Sites

Considering the draft articles on planning, funding and management from the original version of the Ename Charter, there are a number of aspects that relate to current procedures and practices. Article 21 notes that

'the unique archaeological and historical heritage of local communities is threatened by global cultural homogenisation, as well as physical threats—local, state, and national policies should encourage and fund public presentations of heritage'.

Telling the whole story, with the necessary cultural, historic and scientific details that prevent homogenisation, frequently involves including different points of view in the interpretation. This approach requires attention to multiple sources, and possibly also multiple perspectives on the evidence. In the United States,

the challenge of preparing a new interpretive programme for commemorating the 400th anniversary of the English colony at Jamestown in Virginia, a NPS site, in 2007, is a current example. Considerable discussion is underway regarding how the Jamestown colony and all that developed from it should be presented.

For more than a century, the site of Jamestown has been recognised as the place where the first legislative assembly and the first steps towards representative government in America took place. Continuing to tell this part of the Jamestown story is essential and necessary. In addition, at least three contemporary American ethnic communities are involved in consideration of an updated interpretive plan for the site.

European Americans who traditionally had a attachment to the first permanent English colony in North America continue to have a strong interest in how the site is interpreted. Indeed, all modern Americans, whatever their ethnic or national background, derive the benefits of representative government that began, haltingly and incompletely, at the Jamestown colony. However, since the last major anniversary of the Jamestown settlement in 1957, the cultural, historical and social contributions to the colony as well as its effects for African Americans and Native Americans are more widely recognised. Representatives of these groups also are involved in the interpretive planning for 2007.

Whatever the specifics of the new interpretive programme at Jamestown, it needs to be informed by several themes and perspectives. There is the struggle for survival in a new land, followed by the development by the English colonists of a sustainable economic livelihood. Simultaneous with these efforts were the activities by some of the colonists striving for representation in the political system initially imposed by the English government and crown.

In 1619, Jamestown was the landing site of the first Africans in the American English colonies. These Africans were placed in servitude upon their arrival, but during the early decades of the English colonies this was different from and much more varied than institutional slavery as it later came to exist during the first half of the 19th century in the southern United States. The story of the first African Americans, their contributions to the survival and development of the colony, the nature of early slavery and the manner in which indentured servants and some slaves purchased their own freedom must be included in the new interpretations at the site.

Another story to be incorporated into the new Jamestown interpretation is the culture, economy and politics of Native Americans who lived in the lower Chesapeake Bay region at the time of European contact. During the early decades

following English arrival, some Indian leaders manipulated relationships with the colonists to their own economic and political advantage. Natives found themselves infected by European diseases to which they had no immunities, and their populations reduced substantially. Ultimately, differences between the economic and land ownership goals of the Europeans and the Native Americans led to military conflict between the two groups. This story also must be a part of the new public interpretation at Jamestown.

None of these are simple stories. One of the goals of the new interpretation programme is to tell them clearly in as objective a way as possible. In addition, these specific stories must fit into the wider context of ancient and modern North American history .

The point here is that often there is no single story or single perspective on the past to be commemorated at a site or monument. Of course, interpretations in displays, film or slide presentations, and even in oral presentations made by site interpreters, cannot be completely open-ended. Although the possible perspectives may be as varied as individual visitors, however some limits on what is presented are necessary. NPS policies call for presentations and interpretations to

'be based on current scholarship and research about the history, science, and condition of park resources, and on research about the needs, expectations, and behavior of visitors' (National Park Service 2001: 76).

The policies also note: *'The National Park Service will present factual and balanced presentations of the many American cultures, heritages, and histories. Consultation with the diverse constituencies is essential to the development of effective and meaningful interpretation and educational programs ... [However] acknowledging multiple points of view does not require interpretative and educational programs to provide equal time, or to disregard the weight of scientific or historical evidence'* (NPS 2001: 75, Section 7.5.5).

In addition to providing multiple perspective interpretations at individual parks and sites, the NPS as a bureau has the goal, and is directed by Congress, to ensure that the full diversity of American history and prehistory can be expressed through the National Park system and its interpretation programme. Denis Galvin, former deputy directory of the NPS, emphasised this role for the bureau at a cultural resource conference in 2000 where he noted that the NPS needs to be seen as a 'steward' of American heritage, not merely as managers of the tourist

attractions. Galvin stressed that interpretation at parks should be linked to great themes, such as the peopling of America, the Civil War, the American Revolution, the development of representative government, the struggle for civil rights, and so forth, not merely on the specific events and individuals who are related directly to parks and sites (Galvin 2001).

To return to the topic of Article 21, Jamestown is a site with national and international ramifications, as well as local importance. Attention to the details of local ancient and modern history argue against homogenisation through cultural globalisation. Not only is homogenisation of presentation a concern, but the loss of the details of history should be avoided. The United States is a culturally diverse nation. Some of our citizens, or their ancestors, experienced injustice, bigotry, racism and economic inequalities during our national past. We don't celebrate these past deficiencies, but we must recall them, and be reminded of how we have overcome them. As we all have been told, those who fail to remember the past are destined to repeat it. Commitment to telling the entire story, at individual sites and as part of entire park systems is an important commitment for national governments.

Overlooking the details of history is often related to a decision to gloss over episodes of history that display unattractive aspects of a national story, for example, the Japanese-American internment camps set up by the United States government during the Second World War. The US Congress has added a new historical park to the National Park system in order that this unattractive aspect of our national history will not be forgotten. Manzanar National Historical Site in the California desert includes the remains of one such internment camp for Japanese-Americans.

Article 22 of the draft Ename charter states that:

'*the public presentation (interpretation) is as important as physical conservation of sites, structures, and landscapes*'.

For archaeological sites, which most often are not even visible above the ground surface, public interpretation of sites is especially important. The public cannot be expected to appreciate or be concerned about things that it cannot see or understand. If archaeological sites, even those that include substantial structural remains of once-impressive buildings, cannot be seen, how is the public to appreciate them? Some illustrative assistance is necessary: in many cases, a picture is indeed worth a thousand words. For example, the World Heritage Site of Cahokia in southern

Illinois, near St Louis, Missouri, includes the thousand-year-old archaeological and structural remains of one of the largest urban concentrations of its time. The modern view of the site includes some impressive structures. Monks Mound (Fig 1), for example, is the largest earthen structure in North America north of Mexico. Yet, an artist's interpretation of the part of the site that includes Monks Mound as it might have looked and been used a millennium ago (Fig 2) provides a much richer and more easily understood interpretation. The artist, following the results of analysis of archaeological investigations, is able to add earthen and wood architectural structures no longer visible above the ground surface. The artist also is able to populate the painted scene with humans pursuing activities known from the archaeological investigations to have been carried out in the area. This interpretation provides important clues about past human behaviour and information than can be perceived from walking over and viewing the present landscape of preserved above-ground earthen structures alone.

Even extensive exposed foundations of stone or brick at historical sites don't tell the whole story of a site. This is one of the reasons that the computer projections at the Ename abbey site have been developed. At Jamestown historical brick and stone outlines of the foundations of buildings from the first town and capital of Virginia have long been used to try and convey activities from the historic occupation (Fig 3). However, a series of paintings showing general scenes and specific historical events present a much more accessible view of the historic past at Jamestown (Fig 4). Visual presentations, be they computer projections, or less technically complicated paintings, sketches or models, can make archaeological interpretations much more accessible and understandable for nonspecialists.

Article 23 of the first draft of the Ename charter states that:

'permanent, accessible public presentations should be required when cultural resource is destroyed by public actions or projects'.

This article is consistent with NPS guidance and recommendations for public projects that have an effect on cultural resources. However, in the USA there is no strict legal requirement for such public presentations or interpretations under United States law. If a Federal undertaking results in the damage or destruction of significant historic properties, documentation of the resource may be required to mitigate the project impact. It also is possible that some kind of public presentation will be part of an impact mitigation agreement, but this is not a legal requirement.

Figure 1: Historic photo of Monks Mound set among agricultural fields during the first half of the 20th century before it was incorporated into a State Historical Park and recognized as part of Cahokia World Heritage Site.

Figure 2: Painting by William R. Iseminger from interpretative displays at Cahokia State Historical Park, Illinois. Monks Mound shown in center of painting surrounded by various other developed areas in the ancient city of Cahokia.

'Public presentations ... consistent ... [and] harmonise[d] with the scale, expense, and technological infrastructure of the location and available facilities at the cultural site, structure, or landscape ... [which also are] sustainable' are called for by Article 24 of the draft Ename charter.

This article, along with Article 25 which calls for environmental impact studies as part of interpretative or presentation planning, is quite consistent with NPS policies for interpretation and presentation. NPS policies require that each park prepare and follow 'a comprehensive interpretative plan' (NPS 2001: 74). Such plans consider the park's historical, natural and cultural significance; the location, size and financial resources of the park; and its local context. The planning for the development of these comprehensive plans addresses how the park should best complement its interpretative and presentation functions. The potential kinds of interpretative and presentation tools typically used at NPS parks and sites include

Figure 3: Historic photo of the outlined foundations of the 17th century Ludwell Statehouse, Jamestown National Historical Site. (photo from Colonial Historical Park, National Park Service)

interpretation staff giving talks and leading short site tours, displays and exhibits, audiovisual presentations, paper publications, usually available at several levels, and Internet information.

Sustainability of presentation and interpretation, one of the main points of Article 24, is very important and most challenging. This consideration must be taken into account when interpretive facilities and programmes are being planned and designed. Whether the challenge is technological or involves

Figure 4: Painting entitled, "Jamestown Lifescape, mid-17th Century", by Keith Rocco. (painting from Jamestown: An American Legacy. Martha W. McCartney, Eastern National Parks and Monuments Association, 2001)

providing adequate human staffing, support is necessary for long-term retention of any interpretation or presentation. As human staffing costs invariably rise and regular cleaning and maintenance of displays and equipment is necessary, finding adequate operational funding is a constant challenge. It is a challenge that faces all

site managers and one that often is not foremost in the minds or among the goals of potential donors or philanthropies. These sources of funds frequently are more interested in supporting 'new' or 'innovative', rather than existing programmes, even excellent ones.

Article 26 calls for coordination among government, local and private organisations to ensure continued funding, maintenance and delivery of the presentations. The goal of this Article is efficiency of presentation and effectiveness of message that will help to ensure sustainability of programmes. NPS policies are very consistent with this article, calling as they do for coordination with local and state governments, especially when interpretation or public presentations may involve controversial points. NPS also works closely with other public and private organisations on a variety of interpretative funding or support issues. For example, all bookstores in NPS visitor centres in parks are managed by private, non-profit cooperative associations, not the NPS. These organisations, which are mostly regionally based, also fund the production and publication of many interpretive products for purchase by park visitors. Any profits made by these cooperative organisations are used to support additional interpretive and resource preservation and protection services in NPS units. Cooperation with local groups and individuals often are coordinated by 'Friends of the Park' organisations and other volunteer programmes.

The Lasting Importance of Interpretation and Presentation

A set of international standards for the public presentation and interpretation of archaeological and historical sites and monuments is needed to focus greater attention on this important aspect of cultural resource management and historic preservation. More guidance, based upon a growing body of experience, is needed by professionals in the field (for examples of public outreach in archaeology, see articles in Smardz and Smith 2000 and Little 2002). Public presentation and interpretation are especially important to maintain a foundation and build upon existing public support for archaeological and historic preservation programmes.

Public presentation and interpretation of archaeological and historic sites and monuments require effective messages and messengers. Archaeologists and historic preservationists are not to be alone in communicating the messages. Educators, reporters, film-makers and a host of others are already enlisted in these efforts. Archaeologists in particular should take a role in public education and outreach, even if only as cheerleaders and supporters for those who actively take

on this challenge (McManamon 1998, 2000a, 2000b, 2002; Sabloff 1998: 873-874; Smith 1993). Principle No 4: Public Education and Outreach in the 'Principles of Archaeological Ethics' of the Society for American Archaeology emphasises this professional responsibility (Herscher and McManamon 1995).

Archaeologists should reach out to, and participate in cooperative efforts with, others interested in the archaeological record with the aim of improving the preservation, protection, and interpretation of the record. In particular, archaeologists should undertake to: (1) enlist public support for the stewardship of the archaeological record; (2) explain and promote the use of archaeological methods and techniques in understanding human behavior and culture; and (3) communicate archaeological interpretations of the past. Many publics exist for archaeology including students and teachers; Native Americans and other ethnic, religious, and cultural groups who find in the archaeological record important aspects of their cultural heritage; lawmakers and government officials; reporters, journalists, and others involved in the media; and, the general public. Archaeologists who are unable to undertake public education and outreach directly should encourage and support the efforts of others in these activities. (Society for American Archaeology 1996: 452).

There are various kinds of jobs that professional archaeologists, curators, historians and historical architects hold. Among the most common places of employment are academic research and teaching, conducting investigations as consultants in the planning and conduct of public projects, working for public agencies that manage lands, programmes or resources and in museum curation, interpretation and research. Each of these areas of employment includes opportunities for public education and outreach as a part of professional activities.

Professionals in the cultural resource disciplines should see themselves as messengers promoting archaeological and historical preservation. They can act locally, regionally or nationally using newspapers, magazines, radio and television to feature archaeological and historic preservation activities, events and news. Individual professionals, no matter which part of the field they work in, should be willing to speak at local schools, civic organizations and for local archaeological, historical, preservation and conservation organisations. When addressing general audiences, beginning students or smaller groups of non-professionals, clear texts and simple presentations are necessary.

Professionals should cooperate with avocational archeological societies and local historical societies. They need not lead these societies, although some

do, but willingness to take part is appropriate recognition of the important work that such volunteer organisations can accomplish (see Davis 1991 and Hoffman 1991 for archaeological examples).

There are exceptions, of course. Some professional archaeologists, curators, historians or historical architects, like certain experts in other fields, are not particularly suited by ability, personality or skills for effective public outreach. Still these professionals can support outreach efforts by their colleagues. Professional education in these disciplines can be modified to include course-work consideration of the importance of public presentation, interpretation and outreach, and teach the skills needed for these activities. As young professionals learn firsthand of the importance of such public activities and increasingly take them on, the frequency of professionals ill-equipped for public outreach will lessen.

Archaeologists, in particular, should serve as messengers for and about archaeology (McManamon 2000a). Self-interest is one reason for this, but preserving some portion of the past is the greater goal. Article 22 of the Ename Charter makes this point and may be the most important of the articles considered in this chapter. Most archaeological sites and many other kinds of historical monuments are not immediately understandable by visitors. Some kind of interpretation is almost always needed in order to comprehend the physical appearance and the historical significance. Without this kind of public understanding, it is unlikely that public support for physical conservation and preservation of the sites and monuments will continue. Without public support, it is unlikely that public funding will be provided.

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TO BRING THE PAST TO THE PRESENT IS PLANNING THE FUTURE

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I had to ask myself a question when I was considering the title for this paper at the Ename conference, one apparently of small importance: should I add a question mark or not? It makes a difference if the question is affirmative or demanding.

In the evaluation of local development strategies, in many Portuguese cases this uncertainty is present. Why? It is mostly due to the fact that levels of sustainability have not yet been reached, and safeguarding of cultural heritage is an on-going process. Undoubtedly, the question mark will be lost in the process, when a cultural project is turned into a clear statement of development. Future generations will inherit a better cultural environment, not only for economic and social benefits, but also because the past will be more closely part of their heritage. Such a situation will contribute to their perception of community values, it will fulfil a sense of belonging and have a firmer grasp of cultural roots. When many social problems are related to the loss of identity, strategies which enhance personal heritage for new generations are required.

The economic impact of heritage projects for the tourist industry may not be ignored. It is now common to find culture-based development strategies, particularly in the rural world, in demographically and economically depressed communities, all of them trying to find ways to profit from their particular characteristics, trying to attract more and more city dwellers, packed together by millions in the big cities, to these new weekend and holiday paradises.

In Portugal twenty years ago, at least, this was quite unusual. With the exception of some historic urban settlements selected in the 1960s to illustrate architectural heritage from different areas of the country ('typical' Portuguese villages), there were hardly any examples that could be presented to bolster

arguments in favour of cultural safeguarding.

The Portuguese town of Mértola was not thought of in such terms originally. Science and archaeological research were its initial focuses, as the town had preserved untouched areas from the Roman and Islamic occupations (Figs 1 and 2). This seemingly golden opportunity produced research conclusions that altered some chapters of the national historical narrative, and gave the town a prestige with very positive implications for the local development strategy. The discoveries snowballed from initial, tentative, possibilities into a new future for the local community. The desire to enhance the local heritage for the population led to the displaying of new finds and theories with important structures, and from this arose a new concept, a Town Museum, that gradually changed the *vila velha* (old town) into a nationally and internationally prestigious historic urban area.

I have tried to establish a chronological synthesis of the evolution of the Mértola project, to give a general overview of this cultural and local development project.

The first of four stages started in 1978 and ended in 1986, it can be described as 'the flower power years', at least until 1984. The project began under the patronage and moving impulse of the former mayor of Mértola, Serrão Martins, and developed from the scientific survey of Cláudio Torres (still the project director). The project was also a consequence of Portugal's social and

Figure 1: Mértola's historic area. A general view over the Guadiana river.

political revolution after the 1974 change of regime. Culture and archaeology made, during those years, great progress, and it was quite common for university students to come from the cities into the countryside to work on scientific projects. In Mértola, their enthusiasm and knowledge was shared with local population, and from these two groups gradually emerged the core of a research team. As a consequence ADPM (Mértola's Heritage Safeguarding Association) was formally established in 1980. Apart from the first two museum spaces opened in this period, the lack of funds did not permit more than data retrieval. This work was done in archaeology, local history, documentation, anthropology, geography, biology, etc., gathering as much information as possible to create a foundation out of which the project would be constructed in the years to come.

The second stage (1987-1991) followed a period of transformation: Serrão Martins died prematurely in 1984 and Cláudio Torres left Lisbon University and came to live permanently in Mértola. Portugal joined the EU in 1986 and, last but not least, Mértola's archaeological research team was charged by its Mediterranean collegues to organise for 1987 a major international scientific meeting in the field of mediaeval archaeology.

This event (IV International Congress on Mediaeval Archaeology of the Western Mediterranean) highlighted the necessity for a new home for the project's central research departments. These were funded by the municipality, and,

Figure 2: Mértola's paleochristian basilica museum, interior view.

combined with new financial resources from European Structural Funds, allowed the research team to grow, achieve greater stability and acquire a considerable amount of technical equipment. More specialised management was also required, and therefore, the CAM (Mértola's Archaeological Research Team), previously a section of the ADPM, was founded in 1988, splitting from its progenitor. This was a very important decision, because from that moment on the CAM concentrated its attention on archaeology and the built heritage, while ADPM's interests turned to specialised work in natural heritage and social intervention projects. The separation has been a positive one, although communication between the two institutions since the separation has been a problem.

The third stage (1992-1995) was a period of difficulties. The transition between the first and second EU Structural Funds Framework, with an immense bureaucratic delay in funding, caught the project at an investment stage, particularly the acquisition of space. This necessitated bank loans and a reduction of the scale of the projects. This stage had severe consequences in terms of the CAM research team's stability, leading to a great number of management changes, not all of them correctly carried out. This was the first time that these kinds of problems had occurred in the lifetime of the project, so there were no management skills available within the team to deal with the situation. The impacts of this 'reality crash' can still be felt, mostly in terms of the new management system and staff and Board changes.

Fortunately for the project as a whole, the environment became a major concern in the 1990s, and this new favourable political climate allowed ADPM to develop its scientific work in this area, with a great many projects supported by the Ministry of Environment, Regional Administration, international institutions, such as WWF, and of course, the EU, through its Regional Development Funds. These studies were the basis for a project to obtain Natural Reserve classification for a part of the Guadiana basin, which was granted in 1996.

The last period (1996-2001) represents perhaps the completion of the initial idea, to build a museum town. Major support was given in 1996 by the Tourism Fund (a government office of the Ministry of Commerce and Tourism) allowing the project to to complete the construction of museums and other supporting structures by 2001. With substantial extra funding from the Municipality it was possible to speed up the initial time schedule of approximately 10 years. Local economic structures bolstered by the attention generated by the scientific results have now the basic equipment for the diffusion of cultural tourism diffusion: museums. This is surely the most positive result, socially and economically speaking, from so

many years of work.

Many times, on different occasions, I have presented the idea that Mértola's development project could be compared to a strange auto assembly line, where we assembled a Ferrari engine inside a 1905 Daimler-Benz: a contemporary powerful engine within a heritage car body. We could, at the same time, safeguard local heritage and use it as a local development resource, to drive the present and future population to a higher quality of life. Such an idea represented a double effort in fund-raising. Nice, but expensive: the project needed a specific strategy for rapid results, because there was not much time. With local people leaving the territory due to high unemployment, it was not possible to wait for the whole car to be finished to present it, only then. Such urgency demanded a different approach, so the idea was to find the funds for each specific item of the car-to-be (guided by the detailed plans made in the first years of the project's initial stage) and, at the same time, inviting local and outside audiences to visit the auto shop. The marketing and communication strategy was to let people understand what was going on, how serious, meticulous and socially important this process was, and appealing to their solidarity so they would understand why there was not yet a finished car for them to see. I cannot say that another way would not have worked also (although the economic situation of these two decades would not have given many choices). But the fact that this model was successful is important, not only to us, but as a strategy for local development based on heritage and cultural issues for other areas of low resources.

In the 1990s, Mértola's team members were invited to present the project at many conferences and seminars, to explain how it had been possible. As the 'heritage car' depends for its final design on the local cultural heritage, this should not be transposed globally. Local specificities have to be taken into account, but the strategic approach, in itself, I believe, can be helpful for similar projects, as a model, helping the strategic thinkers of other places and structures to evaluate their own ideas carefully. I include this in our list of positive achievements, as this is the major cause that still motivates the team members to review our strategic model description.

The reader should now have understood that the engine of our car is the group of small museums scattered in the historic centre (the car body). But this was not a simple process. To be involved for so long in the preparation of these new museums produced stresses and loss of impetus that showed itself clearly, by the end, in the partial breakdown of the team and in the research losing intensity. For some years the researchers had to play the role of construction foremen, as

well as assistant designers or architects, and fund-raisers and managers, all the while trying to keep up with their own work. Spending the funds on building the museums with a strict deadline slowed down the research pace. It is now evident that a functional restructuring is necessary, re-focusing interest on pure research, once the initial results so far have been published in Mértola's museum catalogues and as academic papers. New lines of research and interpretation are necessary in order to push scientific innovation. Most of the resident researchers have managed to progress to working for postgraduate degrees, most of which will be completed in the coming two years. This will also change the team of young students into a group of highly qualified academics, with the proper conditions to attract and build a younger generation of researchers. New research results are clearly required to assure new development in the project.

The strategic scenarios possible for the future of this project are centred in three main lines:

- to move on by enlarging the work and developing specific projects as the chance of funding appears (as has been done so far), using the same two institutions (ADPM and CAM). This may lead to collapse due to two possible causes: difficulty in managing the number of activities, and imbalances from uncoordinated project development. The lack of funding can generate the same effect, as a consequence of the fact that no project receives 100% funding, so all of them require a certain amount of 'home' investment, which might lead to bankruptcy. Of course, this is not an unavoidable scenario. It is possible to adopt this strategy. But it is a bit like a poker game: all the money can vanish in a bad bet, with no return. A more cautious reflection indicates that this is a tricky path.

- to institutionalise the structures, developing their connections with local or regional authorities, changing management services for financial stability. If the previous option can be identified as a probable risk, this one is a dead end. Such a strategy will tend to turn all actions into routines, the members of the teams losing their need for innovation and new areas of development, leading to a inevitable stable situation, in a more or less distant future.

- the third choice is to decide that the first life cycle of this project has ended, with the evidence of the established group of museums, the

establishment of the Guadiana's Natural Park and the results of 20 years of work. These are independent structures to be used as tools for local development. It is clear that these new institutions have independent life; the museums as part of the local cultural equipment under the management of the Social-Cultural Department of the Municipality, and the Park as a member of the National Park Services, under the supervision of the Ministry of Environment. Evolving into separate, innovative projects is surely better than to remain as appendages to the functions associated with the management of the project.

This last choice would help the research team to keep its mobility, to begin to fill new foundations with scientific data, and to excavate more buildings to assemble in the already existing 'neighbourhood'. This will stimulate innovation, diversity of fund-raising approaches, imaginative auxiliary tools, conceptualisation updating: this project will stay alive.

A strict analysis has to be carried out to define which model is to be followed, and may be already too late. Of course, the team members might not have the will to move on to directions that mean more work or the need to update a lot of their strategy skills. Other participants, sharing the same vision, will be as good as the original ones. Any action, any choice, is better than no choice. Just letting matters drift on will compromise the effort and positive results achieved up until now, and there is a social responsibility to maintain the work achieved so far.

This point leads us to a major issue in heritage-based local development strategies. Since cultural tourism became a fashion and part of a very profitable industry, the tendency has been to adulterate the meaningful cultural value of local resources. There is a major trend towards 'culture': all politicians, promoting the living economic structure of their towns and territories, support festivals, conservation projects, newly disguised old traditions, all of this without real research behind it.

Researchers and local development agents have a serious role to perform in the future, contributing their judgement and efforts to head off such temptations from local communities and their representatives. Many people tend to confuse scale with value. Thinking that those who have a larger number of or bigger monuments will have more visitors, and therefore need more external resources contributing to local development, is not accurate. The main point is to preserve the existing resources of each place, for these are the testimonies of its historical,

economical, social and cultural evolution, and that is what makes it original. Results should not be enhanced for a 'competition' in cultural tourism: local resources are what they are, in their authenticity and in their specificity.

On the surface, in some small places, it may seem that there is nothing to show. Material (monuments, artefacts, etc.) and immaterial (traditions, legends, etc.) remains may be in small numbers, or have no relevant aspects. But such values do not depend on their dimensions or quantity.

Local audiences are the first and primary audiences for information retrieved from the local cultural heritage. All temptation of building 'theme parks' must be avoided. The visitors must feel pleased and privileged to participate in a living cultural process, as well as helping to enhance the cultural wealth of any town or territory. The inverse option leads to a decharacterisation of local culture. Losing more and more identification with their original cultural background and roots, local people, particularly new generations, will move to different places to live, absorbed by the cities. These actors will be replaced by mere economic agents, the profit being their main interest, on an open highway to 'artificial traditions'. Safeguarding heritage surely needs a different course of action.

This brings us to the issue of diffusion, and its strategic approach when related to heritage, particularly if this concerns fragile remains, such as archaeological or artistic, that require appropriate intermediation when displayed to audiences, whatever they might be.

Many researchers, particularly if permanently settled in the cultural territories where their scientific work takes place, tend to have connections with cultural agents or educational workers. They must not discard the human and social relevance of such roles from what should be their dominant responsibility: local heritage knowledge, conservation and intermediation.

When dealing with heritage as a part of a local development strategy, some fundamental aspects of its public diffusion can be focused in two guidelines:

- the main audience is the local audience, and their sense of ownership and civic participation are fundamental to establish everyday positive management tools and actions. Following this line of thought, the conservation results will be more than just merely symbolic;

- the outside audiences, visitors and tourists, have to grasp the scientific and historic relevance of the place, not only a visual perception of it, and all the data should be given to them.

This requires, as we have tried to do in Mértola, a delicate balance between research results and diffusion methods, and between the educational schemes and activities aimed at the different audiences and the conservation and safeguard of the cultural resources involved in such actions.

The choice of good practices is surely not more expensive than those that use the cultural resources and heritage as merely instrumental. It is mostly a question of defining the effective cultural gains for the different audiences and keeping close to those objectives. The economic benefits will come as a consequence, not as aims in themselves. Therefore, local, regional and even sometimes national authorities must regard those good practices as solid investments, and not only for their actual or future economic impacts but also for their role as action tools for territorial planning and management strategies in long-term development models.

The Islamic Heritage Festival is an example of how such combinations can be fortunate. The idea was to make the visit a combination of local Islamic heritage, of which the parish church, the only surviving ancient mosque structure in Portuga and the urban archaeological site, were the major attractions. The Festival also presented a modern reconstruction of a souk and a celebration of religious ceremonies of the Muslim inhabitants in Mértola. A scientific conference was held in parallel with a large photo exhibition for wider audiences. All these events were structured around a central idea of enhancing multiculturalism in the roots of our nation. The festival was a major success, both culturally and economically, with large numbers of participants and visitors. A similar presentation was planned for 2003, with the newly opened museum, exclusively dedicated to this historical period.

The Festival has become the main promotional strategy for Mértola's heritage. By promoting its projects and intervention philosophy to the media (TV, printed press, radio, etc.) it was possible to obtain a great deal of free publicity, which helped to publicise the project. There was no particular single influence, just a little public relations and, of course, the value and originality of the project itself. Culture and prestige are good news, and so it was in both sides' interest to keep the trade (cultural data for free diffusion) going.

International partnerships have been flowing constantly in our direction since Portugal joined the EU and are a logical part of our diffusion process. Some of this is indirect diffusion, mostly when the projects are scientific research and/or heritage conservation, and results are mostly restricted to specialised audiences. But

we have been working closely also in projects in which diffusion of local scientific and tourist data is the main goal through networks of projects and on Internet sites. This has generated a very powerful database for scientific information, continuing for the years to come, in a new European towns network (AVEC - *Association des Villes Europeennes de la Culture*) where the extremely interesting results of three years of collaborative work in RESIDE will be continued and enlarged to include other members.

The backbone of such a project is to keep cultural interest the primary reason: enhancing its value for local inhabitants, to make them proud of their past, to give them confidence and alternatives to face the future. Visitors can have their perception of a place enriched, filled as it is with historical and patrimonial values, to allow them to leave feeling that they are taking something with them, in their knowledge, in their memories, in their feelings.

However, the economic resources that can be generated by the tourism must not be neglected. Therefore, the emphasis must be on assuring that there is a dynamic interaction between tourism and cultural heritage. How can this be done?

First, by clearly establishing that heritage resource is non-renewable. Economic agents must be particularly alert to the fact that the squandering destruction of such resources will harm their businesses. Close communication, even promoting sensibilisation actions, should be established with these agents as standard good practice.

Secondly, cultural tourism programmes should be developed in a way that can be profitable with even a small number of visitors. This means simply that a proper balance must be maintained between the annual total of potential visitors and the desired and even distribution along the year. A suitable marketing strategy can act as the main diffusion element of such programmes. A very important argument, to which cultural tourism audiences respond positively, is the assurance of a quality visit in avoiding mass tourism. In many top heritage sites there is often a sense of frustration due to the excessive number of visitors. A marketing strategy should be implemented with tools to prevent this. In Mértola in a recent meeting there was a general agreement about the fact that the biggest problem is not the number of visitors, in general perfectly well adapted to the scale of the town (and with enough capacity to accept 50% more visitors) but their uneven distribution throughout the year. If it were not for the fact that many family businesses have some necessary services carried out for free or at a nominal cost, it is probable that the number of existing businesses would have reduced due to the negative impact

of low seasonal visits.

It is also important to develop diffusion tools that can, to a reasonable extent, substitute or interpret part of what the visitor is expecting to see. This strategy can help conserve heritage areas under risk or places difficult to visit for public safety reasons. Again, a proper communication plan will state clearly to visitors the fact that some areas are under special protection, and that their preservation is a common responsibility. The appeal to social participation, at least as far as I have experienced it, is generally well taken by those audiences who come for cultural tourism.

All these issues have been considered by the ICOMOS Charter for Cultural Tourism, which can guide us to the conclusion that a proper safeguard of heritage is not antithetical to worthwhile, satisfying and enjoyable experiences for visitors. Just as driving a car with a powerful engine safely and carefully does not necessarely turn all journeys into dull affairs, concern for the careful planning of innovative heritage projects will ensure that we will travel towards achieving our goals!